

National Bureau of Standards  
Library

JAN 19 1960

Revised from the  
taken from the original

PART A  
IONOSPHERIC DATA

ISSUED  
DECEMBER 1959

U. S. DEPARTMENT OF COMMERCE  
NATIONAL BUREAU OF STANDARDS  
CENTRAL RADIO PROPAGATION LABORATORY  
BOULDER, COLORADO



## IONOSPHERIC DATA

### CONTENTS

	<u>Page</u>
Symbols, Terminology, Conventions . . . . .	ii
Predicted and Observed Sunspot Numbers. . . . .	v
World-Wide Sources of Ionospheric Data. . . . .	vi
Erratum . . . . .	vii
Tabulations of Electron Density Data. . . . .	viii
Tables of Ionospheric Data. . . . .	1
Graphs of Ionospheric Data. . . . .	13
Index of Tables and Graphs of Ionospheric Data in CRPL-F184 (Part A). . . . .	49
Index of Ionospheric Data Published in 1959 (CRPL-F173 (A) through F184 (A) . . . . .	52

## SYMBOLS, TERMINOLOGY, CONVENTIONS

Beginning with data reported for January 1952, and continuing through December 1956, the symbols, terminology, and conventions for the determination of median values used in this report (CRPL-F series) conform as far as practicable to those adopted at the Sixth Meeting of the International Radio Consultative Committee (C.C.I.R.) in Geneva, 1951. Excerpts concerning symbols and terminology from Document No. 626-E of this Meeting are given on pages 2-7 of the report CRPL-F89, "Ionospheric Data," issued January 1952. Reprints of these pages are available upon request.

Beginning with data for January 1957, the symbols used are given in NBS Report 5033, "Summary of Changes in Ionospheric Vertical Soundings, Observing and Scaling Procedures - Effective 1 January 1957," which draws upon the First Report of the Special Committee on World-Wide Ionospheric Soundings (URSI/AGI), Brussels, Sept. 2, 1956. A list of these symbols is available upon request.

In the Second Report of the Special Committee on World-Wide Ionospheric Soundings of the URSI/AGI Committee, May 1957, a new descriptive letter was introduced:

- M Measurement questionable because the ordinary and extraordinary components are not distinguishable.

There was an expansion in meaning of the following:

- Z (1) (qualifying letter) Measurement deduced from the third magnetoionic component.  
(2) (descriptive letter) Third magnetoionic component present.

Beginning with data for January 1945, median values are published wherever possible. Where averages are reported, they are, at any hour, the average for all the days during the month for which numerical data exist.

The following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given above.

- a. For all ionospheric characteristics:

Values missing because of A, C, F, H, L, N or R are omitted from the median count.



b. For critical frequencies and virtual heights:

Values of foF2 (and foE near sunrise and sunset) missing because of E are counted as equal to or less than the lower limit of the recorder. Values of h'F (and h'E near sunrise and sunset) missing for this reason are counted usually as equal to or greater than the median. Other characteristics missing because of E are omitted from the median count.

Values missing because of G are counted:

1. For foF2, as equal to or less than foF1.
2. For h'F2, as equal to or greater than the median.

The symbol W is included in the median count only when it replaces a height characteristic; the descriptive symbol D, only when it replaces a frequency characteristic.

Values missing for any other reason are omitted from the median count.

c. For MUF factor (M-factors):

Values missing because of G or W are counted as equal to or less than the median.

Values missing for any other reason are omitted from the median count.

d. For sporadic E (Es):

Values of fEs missing because of E or G are counted as equal to or less than the median foE, or equal to or less than the lower frequency limit of the recorder.

B for fEs is counted on the low side when there is a numerical value of a higher layer characteristic; otherwise it is omitted from the median count.

S for fEs is counted on the low side at night; during the day it is omitted from the median count (beginning with data for November 1957).

Values of fEs missing for any other reason, and values of h'Es missing for any reason at all are omitted from the median count.

Beginning with data for November 1945, doubtful monthly median values for ionospheric observations at Washington, D.C., are indicated by parentheses, in accordance with the practice already in use for doubtful hourly values. The following are the conventions used to determine whether or not a median value is doubtful:

1. If the count is four or less, the data are considered insufficient and no median value is computed.

2. For the F2 layer, h'F or foEs, if the count is from five to nine, the median is considered doubtful. The E and F1 layers are so regular in their characteristics that, as long as the count is at least five, the median is not considered doubtful. A count of at least 5 is considered sufficient for an h'Es median.

3. For all layers, if more than half of the data used to compute the medians are doubtful (either doubtful or interpolated), the median is considered doubtful.

The same conventions are used by the CRPL in computing the medians from tabulations of daily and hourly data for stations other than Washington, beginning with the tables in IRPL-F18.

Ordinarily, a blank space in the fEs or foEs column of a table is the result of the fact that a majority of the readings for the month are below the lower limit of the recorder or less than the corresponding values of foE. Blank spaces at the beginning and end of columns of h'F2 or h'F1, foF1, h'E, and foE are usually the result of diurnal variation in these characteristics. Complete absence of medians of h'F1 and foF1 is usually the result of seasonal effects.

The dashed-line prediction curves of the graphs of ionospheric data are obtained from the predicted zero-muf contour charts of the CRPL-D series publications. The following points are worthy of note:

- a. Predictions for individual stations used to construct the charts may be more accurate than the values read from the charts since some smoothing of the contours is necessary to allow for the longitude effect within a zone. Thus, inasmuch as the predicted contours are for the center of each zone, part of the discrepancy between the predicted and observed values as given in the F series may be caused by the fact that the station is not centrally located within the zone.
- b. The final presentation of the predictions is dependent upon the latest available ionospheric and radio propagation data, as well as upon predicted sunspot number.
- c. There is no indication on the graphs of the relative reliability of the data; it is necessary to consult the tables for such information.
- d. The tables may contain median values of either foEs or fEs. The graph of median Es corresponds to the table. Percentage curves of fEs are estimated from values of foEs when necessary.

# PREDICTED AND OBSERVED SUNSPOT NUMBERS

The following predicted smoothed 12-month running-average Zürich sunspot numbers were used in constructing the contour charts:

Month	Predicted Sunspot Number										
	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950
December		137	150*	150*	150	42	11	15	33	53	86
November		137	150*	150*	147	35	10	16	38	52	87
October		139	150*	150*	135	31	10	17	43	52	90
September		141	150*	150*	119	30	8	18	46	54	91
August		142	150*	150*	105	27	8	18	49	57	96
July		141	150*	150*	95	22	8	20	51	60	101
June		143	150*	150*	89	18	9	21	52	63	103
May	125	146	150*	150*	77	16	10	22	52	68	102
April	130	150*	150*	150*	68	13	10	24	52	74	101
March	133	150*	150*	150*	60	14	11	27	52	78	103
February	135	150*	150*	150*	53	14	12	29	51	82	103
January	136	150*	150*	150*	48	12	14	30	53	85	105

\*This number is believed representative of solar activity at a maximum portion of the current sunspot cycle.

The latest available information follows concerning the corresponding observed Zürich numbers beginning with the minimum of April 1954. Final numbers are listed through June 1958.

## Observed Sunspot Number

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1954				3	4	4	5	7	8	8	9	12
1955	14	16	19	23	29	35	40	46	55	64	73	81
1956	89	98	109	119	127	137	146	150	151	156	160	164
1957	170	172	174	181	186	188	191	194	197	200	201	200
1958	199	201	201	197	191	187	185	184	183	181	179	179
1959	177	175	173	167	162							

## WORLD - WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 72 and figures 1 to 144 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL prediction of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data in this issue:

Meteorological Service, Province of Macau, Asia:  
Macau

Commonwealth of Australia, Ionospheric Prediction Service of the  
Commonwealth Observatory:  
Brisbane, Australia  
Hobart, Tasmania

Australian Department of Supply and Shipping, Bureau of Mineral  
Resources, Geology and Space Geophysics:  
Watheroo, Western Australia

Meteorological Service of the Belgian Congo and Ruanda-Urundi:  
Elisabethville, Belgian Congo

Belgian Royal Meteorological Institute:  
Lwiro (Central African Institute for Scientific Research)

British Department of Scientific and Industrial Research, Radio  
Research Board:  
Singapore, British Malaya  
Slough, England

Defence Research Board, Canada:  
Baker Lake, Canada  
Churchill, Canada  
Resolute Bay, Canada

Universidad de Concepcion:  
Concepcion, Chile

Instituto Geofisico de Los Andes Colombianos:  
Bogota, Colombia

Danish National Committee of URSI:  
Godhavn, Greenland  
Narsarssuak, Greenland

French National Center for Telecommunications Studies:  
Terre Adelie

Ionospheric Institute, Breisach, Germany:  
Freiburg, Germany



General Directorate of Telecommunications, Mexico:  
El Cerillo, Mexico

Christchurch Geophysical Observatory, New Zealand Department of  
Scientific and Industrial Research:  
Christchurch, New Zealand

Norwegian Defence Research Establishment, Kjeller per Lillestrom,  
Norway:  
Tromso, Norway

Rhodes University, Union of South Africa:  
Grahamstown, Union of South Africa

South African Council for Scientific and Industrial Research:  
Capetown, Union of South Africa  
Johannesburg, Union of South Africa

Research Institute of National Defence, Stockholm, Sweden:  
Kiruna, Sweden

Post, Telephone and Telegraph Administration, Berne, Switzerland:  
Schwarzenburg, Switzerland

United States Army Signal Corps:  
Grand Bahama I.  
Thule, Greenland

National Bureau of Standards (Central Radio Propagation Laboratory):  
Anchorage, Alaska  
Byrd Station, Antarctica  
Chiclayo, Peru  
Fairbanks (College), Alaska (Geophysical Institute of the  
University of Alaska)  
Huancayo, Peru (Instituto Geofisico de Huancayo)  
Ilo, Peru  
Juliaca, Peru (Instituto Geofisico de Huancayo)  
Little America, Antarctica  
Maui, Hawaii  
Point Barrow, Alaska  
Pole Station, Antarctica  
Talara, Peru (Instituto Geofisico de Huancayo)  
Wilkes Station, Antarctica

## ERRATUM

CRPL-F183 (A), p. 5, table 29, and p. 27, fig. 57: The foF2 column should read from 00 through 23 hours (UT) as follows: 3.4, 3.0, 3.0, 3.4, 3.4, 3.4, 3.2, 3.2, 5.0, 8.2, 11.3, 13.1, 13.8, 14.2, 14.1, 13.2, 12.2, 10.2, 7.8, 6.2, 4.8, 4.4, 3.9, and 3.6. The corresponding changes should be made in the graph of the foF2 for December 1958 at Inverness.

## TABULATIONS OF ELECTRON DENSITY DATA

Reduction of hourly ionospheric vertical soundings to electron density profiles has become a part of the systematic ionospheric data program of the Central Radio Propagation Laboratory, National Bureau of Standards. Scalings of ionograms for this purpose are being provided by ionosphere stations operated by CRPL and the U. S. Army Signal Corps. For the present, the hourly profile data from one CRPL station, Puerto Rico, are appearing in the monthly CRPL-F Reports, Part A. These data are in place of the standard ionogram reductions formerly provided by this Station. The very considerable task of scaling the ionograms for this purpose is being undertaken by T. R. Gilliland, Engineer in Charge, Puerto Rico Ionosphere Sounding Station; the computations are performed at the NBS Boulder Laboratories by a group headed by J. W. Wright. Basic conversion of virtual to true heights uses the well-known matrix method developed by K. G. Budden of the Cavendish Laboratory, Cambridge University, programmed for an IBM 650 computer.

The tabulations provide the following basic electron density profile data for each hour of each day of the month:

<u>Quantity</u>	<u>Units</u>	<u>Remarks</u>
Electron Density (N)	$\times 10^3 = \text{electrons/cm}^3$	Body of table; given at each 10 km of height.
NMAX	$\times 10^3 = \text{electrons/cm}^3$	Always the highest value of N at each hour. To maintain this rule, the electron density at the next 10 km increment above HMAX is always given as exactly equal to NMAX (unless HMAX coincides with a 10 km level).
QUALification	(Alphabetic)	A standard scaling letter qualifying the observation when necessary.
HMIN	Kilometers	The height of zero or very low electron density, obtained by linear extrapolation of the electron density vs. height curve.
HMAX	Kilometers	The height of maximum electron density, determined by fitting a parabola to the upper portion of the profile.
SHMAX	$\times 10^{10} = \text{electrons/cm}^2$ column.	Obtained by integration of the profile between the limits HMIN and HMAX.

Two tabulations of arithmetic mean electron densities are also given for each hour. An average for the undisturbed ionosphere includes the soundings taken when the magnetic character figure  $K_p$  is less than 4+; the remaining data are combined to form a disturbed average. The latter may have little physical significance because the number of disturbed hours is usually small and the behavior of the ionosphere during disturbed hours is not consistent. On these tabulations the number of profiles in each average is given by CNT.

Before the averaging process, the individual profiles are extrapolated above HMAX by a Chapman distribution of 100 km scale height. This assumed model seems to agree well with the few published measurements dealing with the topside profile of the F-region. Extrapolation is necessary in order to calculate homogeneous averages near HMAX and the average profiles are, in fact, given up to 950 km. Also given are the integrated electron densities estimated to infinity, SHINF (same units as SHMAX); this is an approximation to the total electron content in a column of the ionosphere.

## ELECTRON DENSITY

PUERTO RICO											
60 W											
1 SEPT 1959											
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000 1100
OVAL					A						
HMIN	285	278	248	218	193	348	318	112	111	116	109 109
HMAX	422	412	356	350	450	510	459	328	335	359	366 378
SHMAX	964	897	691	583	568	485	479	1072	1541	2098	2206 2425
KM											
510						477					
500						475					
490						468					
480						458					
470						444					
460						426	508				
450					439	404	506				
440					437	380	499				
430	1191				432	347	488				
420	1191 1119				424	310	471				
410	1179 1119				411	267	450				
400	1151 1108				396	219	425				
390	1107 1083				378	167	392				
380	1042 1042				357	117	353				
370	968 985				333	74.5	306				
360	875 917 1004				307	47.2	257		1583	1724 1815	
350	754 820 1001	679	280		7.8	203			1579	1707 1766	
340	625 704 981	675	251		143			1367	1565	1674 1701	
330	492 573 941	662	224		71.4	1050	1366	1541	1626	1621	
320	335 446 887	640	198		21.7	1046	1354	1506	1563	1523	
310	179 286 810	611	174			1032	1330	1462	1480	1415	
300	79.7 143 716	573	153			1007	1294	1405	1389	1311	
290	33.2 65.7 590	524	133			971	1245	1347	1278	1204	
280	12.4	462	471 115			927	1182	1271	1172	1084	
270		286	410 98.8			868	1111	1182	1050	971	
260		112	342 83.8			800	1027	1086	939	875	
250		26.3	270 71.4			716	928	982	834	787	
240			192 60.0			619	814	875	735	716	
230			97.2 51.3			519	698	774	661	658	
220			26.3 43.3			417	585	670	596	612	
210			29.8			327	477	582	545	564	
200			12.4			248	396	500	497	517	
190						194	329	417	451	472	
180						154	274	344	395	427	
170						127	229	298	341	381	
160						110	195	268	294	343	
150						97.2	166	219	259	306	
140						89.3	143	186	219	269	
130						80.1	134	170	195	236	
120						56.5	115	143	184	214	
110										112 60.0	

## ELECTRON DENSITY

PUERTO RICO											
60 W											
1 SEPT 1959											
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200 2300
OVAL		8						A		A	
HMIN	117		110	110	109	110		198	250	278	306 310
HMAX	388		383	391	377	388		402	451	427	450 456
SHMAX	2593		2406	2299	1960	2070		1071	833	758	687 584
KM											
460									804		698
450									804		784 696
440									798		779 684
430									784	854	765 660
420									760	852	740 627
410									960	727	839 708 586
400				1697					960	687	816 665 535
390	2000		1786	1697		1528			954	638	781 613 477
380	1994		1785	1689	1583	1525			940	590	735 548 410
370	1969		1772	1665	1579	1512			917	535	684 477 342
360	1924		1743	1627	1555	1488			885	477	622 403 274
350	1857		1697	1574	1501	1455			846	417	553 318 205
340	1786		1631	1501	1446	1412			799	355	477 226 132
330	1679		1555	1418	1365	1359			744	292	380 135 80.7
320	1555		1456	1321	1270	1291			685	229	286 71.4 47.2
310	1435		1352	1212	1178	1218			622	174	198 26.3 1.3
300	1316		1250	1096	1084	1143			548	131	112
290	1175		1131	982	971	1050			483	97.2	60.0
280	1050		1016	875	865	949			410	71.4	12.4
270	928		917	784	770	844			342	51.3	
260	826		824	701	686	735			274	292	380 135 80.7
250	747		742	633	615	634			212		
240	673		679	586	559	553			152		
230	618		623	548	513	477			102		
220	568		578	514	469	417			68.6		
210	517		532	483	430	362			45.8		
200	472		490	450	392	314			7.8		
190	427		450	409	355	270					
180	380		413	369	318	233					
170	335		373	331	282	201					
160	286		339	293	250	179					
150	253		304	256	221	166					
140	224		274	227	202	156					
130	208		252	209	190	149					
120	179		219	186	180	132					
110			12.4	40.2	49.6	12.4					

## ELECTRON DENSITY

	PUERTO RICO				60 W				2 SEPT 1959			
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL												
HMIN	316	285	274	260	218	250	352	117	110	110	110	111
HMAX	471	438	446	382	363	477	469	388	315	423	396	392
SHMAX	654	596	667	580	512	594	424	1258	1148	2525	2079	1897
KM												
480	716					500						
470	716					499	540					
460	711					494	537					
450	697		679			484	526					
440	672	716	678			470	508					
430	639	712	669			452	484			1406		
420	599	697	654			429	450			1406		
410	554	667	628			403	408			1403		
400	495	625	596			374	356			1395	1303	1240
390	432	578	559	794		342	298	875		1382	1302	1240
380	367	529	517	793		307	233	874		1365	1294	1234
370	304	471	467	785	540	272	152	868		1344	1281	1220
360	246	403	417	763	540	240	65.7	857		1314	1261	1197
350	186	335	362	730	536	210		843		1283	1233	1166
340	119	262	305	688	528	182		819		1252	1197	1126
330	63.8	192	248	616	514	156		790		1213	1161	1078
320	26.3	122	192	532	495	132		754	1143	1169	1119	1021
310		77.6	138	437	474	110		731	1141	1122	1063	954
300		52.2	88.3	327	449	89.6		700	1129	1063	998	883
290		21.7	57.4	198	412	71.4		656	1105	997	926	810
280			26.3	104	366	56.1		608	1066	924	854	739
270				53.1	310	44.4		559	1019	850	778	673
260					248	25.0		508	960	770	709	613
250					179			459	883	701	643	565
240					104			408	781	631	585	526
230					60.0			362	667	568	536	495
220					12.4			340	540	513	496	471
210								257	437	462	460	450
200								203	342	412	427	430
190								156	280	366	397	408
180								122	232	323	365	383
170								101	192	278	332	355
160								89.6	163	246	298	321
150								82.1	142	215	262	282
140								77.8	127	186	231	251
130								73.6	120	171	209	231
120								54.8	114	161	187	205
110									12.4	49.6	49.6	

## ELECTRON DENSITY

PUERTO RICO												60 W			3 SEPT 1959		
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100					
QUAL																A	A
HMIN	267	255	240	258	273	256	271	115	110	109							
HMAX	382	369	379	390	385	390	420	321	318	360							
SHMAX	466	389	385	302	170	209	272	748	1026	1871							

KM							286										
420							284										
410							280										
400																	
390	670			368	262	262	273										
380	670		439	366	255	260	262										
370	661	557	437	356	240	254	248										
360	640	553	430	342	222	243	233										
350	608	538	417	325	202	227	214			1500							
340	562	515	398	302	181	207	191			1475							
330	500	481	376	272	158	184	166	716		1441							
320	424	432	348	240	134	158	138	716	960	1389							
310	335	368	314	198	110	132	109	712	957	1333							
300	233	298	272	161	88.3	104	80.7	701	944	1256							
290	135	226	227	123	65.7	79.7	56.5	683	920	1180							
280	71.4	149	179	83.8	42.5	60.0	36.2	660	885	1096							
270	19.3	77.6	135	52.2		43.3		631	843	1004							
260		33.2	88.3	12.4		12.4		590	787	900							
250			49.6					540	723	804							
240			1.3					477	650	716							
230								410	573	625							
220								335	500	540							
210								268	417	469							
200								214	351	403							
190								168	292	346							
180								136	240	302							
170								115	195	259							
160								100	158	219							
150								90.5	134	182							
140								62.6	124	160							
130								76.4	119	153							
120								60.0	114	147							
110								40.2	83.8								

## ELECTRON DENSITY

PUERTO RICO												60 W			3 SEPT 1959		
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300					
QUAL		A	S							A	A						
HMIN	110	114	114	110	111	115	116	219	311	323	329	269					
HMAX	395	415	402	409	409	379	381	405	502	490	451	407					
SHMAX	2930	2850	2605	2841	2753	2339	1822	1700	1531	1427	1054	1698					

KM																	
510												1500					
500												1500					
490												1490	1583				
480												1466	1574				
470												1427	1545				
460												1373	1498	1555			
450												1302	1430	1555			
440												1222	1349	1534			
430												1131	1240	1478			
420		1907			2032							1016	1119	1376			
410		1905	2032	2032	2030							1393	896	975	1262	1907	
400	2161	1892	2031	2025	2014							1392	767	820	1111	1902	
390	2158	1866	2016	2003	1983							1697	1384	631	661	931	1877
380	2121	1826	1979	1964	1936	2000						1697	1368	497	492	735	1831
370	2108	1773	1921	1913	1869	1993	1687	1344	375	335	540	1765					
360	2057	1708	1832	1839	1793	1967	1658	1313	262	209	348	1678					
350	1982	1631	1727	1756	1698	1923	1612	1273	173	122	189	1576					
340	1897	1536	1606	1657	1589	1857	1548	1224	107	71.4	83.8	1446					
330	1796	1437	1474	1545	1460	1786	1470	1170	68.6	42.5	12.4	1291					
320	1680	1341	1341	1433	1329	1679	1373	1109	43.9			1096					
310	1555	1222	1182	1303	1182	1567	1253	1031				896					
300	1416	1131	1038	1171	1050	1431	1153	943				679					
290	1269	1016	928	1038	917	1283	1034	854				389					
280	1127	917	824	917	794	1127	889	742				143					
270	993	826	739	814	688	975	754	631				12.4					
260	875	748	667	724	608	807	608	508									
250	786	679	613	649	546	679	477	375									
240	709	628	566	590	499	565	371	219									
230	648	582	529	544	460	484	278	97.2									
220	590	540	494	504	427	411	209	12.4									
210	535	499	462	467	397	356	154										
200	482	460	432	432	370	306	118										
190	432	424	401	393	339	262	93.9										
180	389	392	371	358	307	231	81.1										
170	350	354	335	323	272	201	74.2										
160	316	310	291	289	240	177	69.9										
150	282	267	248	256	210	158	67.4										
140	254	237	221	229	186	142	64.8										
130	234	223	209	213	173	133	62.3										
120	209	127	198	201	163	97.2	49.6										
110	12.4			40.2													

## ELECTRON DENSITY

PUERTO RICO												60 W			4 SEPT 1959		
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100					
QUAL		F	F	F	F	F	F			A	A						
HMIN	199	268	264					120	112		109	106					
HMAX	339	497	476					390	381		446	410					
SHMAX	996	517	577					934	1338		1136	1684					

510																	
500		432															
490		431															
480		427	477														
470		419	476														
460		407	472														
450		393	465														
440		374	454														
430		351	440														
420		324	422														
410		296	401														
400		268	375														
390		237	347											754	939		
380		210	316											752	939		
370		184	286											743	935		
360		158	253											728	926		
350		134	222											708	911		
340	114.3	114	192											682	891		
330	1137	93.9	163											649	865		
320	1117	77.6	134											612	834		
310	1082	63.8	106											569	797		
300	1033	51.9	78.9											522	754		
290	973	42.7	57.0											471	706		
280	892	25.2	43.7											417	653		
270	804	3.9	18.6											366	594		
260	698													315	527		
250	585													262	465		
240	477													214	408		
230	362													167	362		
220	229													119	321		
210	97.2													92.3	291		
200	12.44													82.3	265		
190														77.1	238		
180														71.9	213		
170														69.5	186		
160														67.3	165		
150														65.2	145		
140														63.0	130		
130														60.9	121		
120															113		
110																	





## ELECTRON DENSITY

[illegible]

## ELECTRON DENSITY

[illegible]

## ELECTRON DENSITY

	PUERTO RICO					60 W					9 SEPT 1959				
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300			
OUAL		A	S	S	C	C									
HMIN			111			114		228	241	243	277	277			
HMAX			370			356		386	384	394	399	372			
SHMAX			2404			2069		1492	1282	1009	877	672			
KM															
400										1240	1215				
390								1640	1446	1238	1207				
380								1637	1445	1220	1177	1240			
370			2112					1616	1430	1182	1123	1239			
360			2098			2063		1576	1400	1119	1050	1211			
350			2056			2059		1515	1353	1041	949	1143			
340			1974			2029		1446	1283	943	820	1034			
330			1870			1972		1351	1205	834	679	875			
320			1747			1885		1228	1115	716	540	698			
310			1612			1771		1096	990	596	389	492			
300			1462			1626		939	861	477	219	262			
290			1312			1465		781	704	362	97.2	104			
280			1159			1280		625	540	229	40.2	30.9			
270			1004			1119		446	375	135					
260			885			931		274	179	75.6					
250			774			767		143	71.4	42.5					
240			688			631		65.7							
230			608			519		12.4							
220			546			432									
210			487			362									
200			438			310									
190			394			259									
180			355			222									
170			321			193									
160			286			168									
150			250			146									
140			225			127									
130			210			118									
120			192			97.2									

## ELECTRON DENSITY

	PUERTO RICO				60 W				10 SEPT 1959			
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL							S					
HMIN	110	109	117	110	111	110	114	231	208	260	266	277
HMAX	361	366	375	367	380	359	356	373	391	402	406	387
SHMAX	2259	2266	2319	2077	2212	2011	1848	1306	1286	1026	899	745
KM												
410										1252	1143	
400										1328	1252	1139
390										1328	1240	1118
380			1815		1786			1555	1319	1211	1075	1167
370	1907	1907	1814	1756	1777			1554	1293	1166	1012	1128
360	1907	1903	1798	1751	1753	1922	1846	1537	1250	1102	934	1065
350	1895	1881	1768	1726	1713	1914	1842	1499	1188	1022	844	978
340	1863	1840	1723	1680	1653	1884	1820	1438	1119	917	729	861
330	1812	1778	1660	1599	1578	1833	1778	1350	1031	794	619	716
320	1735	1700	1580	1506	1486	1756	1716	1240	934	655	508	551
310	1645	1601	1486	1404	1393	1657	1631	1127	824	508	380	430
300	1542	1474	1383	1291	1265	1543	1534	990	716	362	262	229
290	1407	1341	1265	1175	1154	1416	1416	834	619	219	152	97.2
280	1278	1175	1131	1061	1027	1257	1269	679	519	177	77.6	40.2
270	1127	1019	1016	939	903	1096	1127	524	408	54.8	26.3	
260	975	875	896	824	784	896	960	335	310			
250	847	764	794	726	679	729	774	179	226			
240	735	655	698	643	590	585	590	71.4	143			
230	623	567	608	568	514	477	446		88.3			
220	573	531	540	513	452	382	323		52.2			
210	519	486	482	462	398	320	229		12.4			
200	467	450	432	417	357	278	174					
190	421	417	389	377	317	240	138					
180	380	381	354	342	282	210	112					
170	339	343	317	307	251	182	95.9					
160	300	303	282	272	224	161	82.8					
150	266	269	250	240	198	143	72.5					
140	232	237	219	211	171	130	66.5					
130	211	214	204	191	156	119	61.1					
120	194	198	97.2	170	145	104	46.5					
110	12.4	49.6		12.4		12.4						

## ELECTRON DENSITY

	PUERTO RICO												60 W												11 SEPT 1959												
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100																									
QUAL																																					A
HM1N	262	280	288	241	220	209	248	114	119	109	110																										
HMAX	374	423	405	375	330	339	365	279	307	316	367																										
SHMAX	685	677	552	558	434	379	286	510	977	1417	2291																										
KM																																					
430	834																																				
420	833																																				
410	823												804																								
400	800												802																								
390	762												786																								
380	1004	716	754	707																																	
370	1003	658	704	705													1907																				
360	987	587	643	694													388																				
350	951	508	557	672													382																				
340	899	417	467	639	439												369																				
330	824	323	362	598	707	437	368													1786																	
320	716	229	240	540	697	431	323													1528 1712																	
310	596	143	127	477	667	420	289													1119 1523 1617																	
300	462	83.8	63.8	396	619	404	249													1114 1497 1507																	
290	298	49.6	12.4	318	548	386	198													1052 1446 1381																	
280	143	1.3	240 469 362 149												754 1050 1371 1240																						
270	60.0	155 380 327 97.2												747 990 1274 1111																							
260	88.3												274 286 54.8												720 907 1143 960												
250	46.5												170 229 12.4												679 804 1004 834												
240													92.8 167												608 691 847 707												
230													49.6												508 573 698 608												
220													56.5												389 462 573 534												
210													5.5												278 375 462 472												
200																									192 310 389 427												
190																									143 257 335 380												
180																									112 211 294 335												
170																									93.6 176 259 290												
160																									82.1 147 222 249												
150																									73.2 125 189 211												
140																									67.6 119 159 179												
130																									62.9 113 142 159												
120																									51.7 40.2 134 150												
110																									834.8 71.4												

## ELECTRON DENSITY

	PUERTO RICO												60 W												11 SEPT 1959											
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300																								
QUAL	A						S																													
HM1N	117	110	117	110	119	119	109	249	215	C				A	262	285																				
HMAX	362	362	361	368	365	352	356	390					258	399	403	413																				
SHMAX	2363	2355	2170	2258	2074	1895	1300	1475					1093	1037	780																					
KM																																				
420													1096																							
410													1215 1095																							
400													1367 1215 1078																							
390													1359 1202 1040																							
380													1427 1409																							
370	2096	2000	1969	1907	1907								1409	1285	1130	896																				
360	2095	2000	1968	1900	1903	1907	1697	1379						1216	1069	794																				
350	2077	1983	1952	1873	1878	1906	1693	1336						1133	996	679																				
340	2032	1942	1907	1825	1828	1890	1668	1279						1019	900	562																				
330	1942	1872	1826	1750	1747	1849	1619	1218						889	804	417																				
320	1826	1786	1727	1657	1646	1786	1546	1143						735	679	251																				
310	1717	1679	1606	1543	1524	1688	1455	1038						573	557	135																				
300	1621	1543	1474	1420	1371	1518	1341	917						403	417	444																				
290	1509	1416	1327	1291	1228	1466	1191	794						229	274	33.2																				
280	1341	1278	1175	1157	1096	1228	1027	667						127	143																					
270	1143	1143	1027	1019	960	1111	794	524						63.8	60.0																					
260	990	1004	889	889	824	931	477	389						12.4																						
250	847	889	774	784	716	754	49.6	262																												
240	729	794	679	688	616	608		143																												
230	634	707	594	608	560	577		79.7																												
220	560	629	527	540	469	398		33.2																												
210	503	553	477	477	406	323																														
200	459	489	430	427	353	267																														
190	413	432	392	380	310	229																														
180	373	384	357	339	276	195																														
170	335	343	319	304	243	164																														
160	296	307	286	274	216	134																														
150	262	274	251	243	118																															
140	231	243	219	216	165	109																														
130	209	217	202	195	152	105																														
120	127	198	112	181	97.2	100																														
110	40.2				12.4		71.4																													



## ELECTRON DENSITY

	PUERTO RICO				60 W				13 SEPT 1959				
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
QHAL	A	S											
MIN	114	116	111	109	117	117	229	229	243	281	294	274	
MAX	360	352	358	361	355	359	371	362	408	408	431	383	
SHMAX	2135	2132	2197	2213	2183	2227	1653	1219	1176	857	836	804	
KM													
440											1119		
430											1119		
420											1107		
410									1290	1215	1074		
400									1285	1207	1017		
390									1264	1172	943	1290	
380							1786		1224	1111	844	1289	
370				2048				1786	1446	1170	1027	742	1264
360	2000	2032	2032	2007	2193	2161	1775	1446	1104	917	619	1209	
350	1985	2031	2023	2030	2189	2152	1746	1433	1022	794	492	1124	
340	1940	2010	1987	1983	2158	2120	1699	1402	917	661	362	1004	
330	1860	1960	1923	1907	2095	2067	1631	1353	807	524	240	854	
320	1760	1876	1819	1797	1994	1887	1555	1283	691	362	143	661	
310	1626	1771	1704	1669	1861	1895	1456	1201	585	229	75.6	477	
300	1478	1626	1570	1509	1712	1771	1327	1096	467	127	40.2	262	
290	1327	1478	1416	1356	1534	1612	1184	960	348	60.0		112	
280	1143	1307	1257	1198	1321	1446	1034	820	229			49.6	
270	1004	1127	1096	1050	1143	1257	861	667	143				
260	885	960	946	903	946	1027	643	508	79.7				
250	746	820	807	781	774	834	519	417	30.1	43.3			
240	698	698	698	661	643	667	127	112					
230	622	608	608	567	540	534	12.4	12.4					
220	547	535	534	502	462	398							
210	462	482	477	451	403	310							
200	382	438	422	409	362	258							
190	316	399	380	372	324	215							
180	270	365	342	341	289	185							
170	245	332	307	307	253	156							
160	229	296	279	272	222	135							
150	217	255	256	237	193	119							
140	210	222	225	210	169	109							
130	203	207	205	192	154	103							
120	179	143	71.4	180	127	97.8							
110				40.2									

## ELECTRON DENSITY

	PUERTO RICO					60 W					14 SEPT 1959				
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300			
QUAL															
MMIN	111	110	110	109	110	115	219	246	238	244	258	286			
SHAX	362	357	365	366	357	366	381	369	405	383	394	413			
HMAX	2299	2417	2554	2531	2249	2181	1685	1154	1157	922	667	649			
KM															
420															917
410										1265					916
400										1263			906		902
390							1669				1247	1167	905		870
380															887
370	2032		2294	2260		2000	1668		1215	1166	887	822			822
360	2031	2260	2290	2255	2193	1997	1637	1452	1167	1115	847	754			754
350	2012	2251	2260	2225	2186	1977	1601	1425	1022	1061	724	562			562
340	1964	2210	2201	2168	2148	1940	1549	1378	928	987	643	446			446
330	1885	2125	2107	2078	2078	1884	1485	1310	820	896	557	323			323
320	1773	2004	1990	1969	1969	1811	1411	1229	704	794	462	209			209
310	1643	1861	1846	1831	1839	1717	1319	1119	596	679	362	127			127
300	1509	1702	1685	1669	1685	1612	1204	975	497	551	262	674			674
290	1367	1515	1519	1501	1519	1467	1080	794	380	437	155	263			263
280	1221	1359	1341	1324	1324	1237	931	625	274	310	9248				
270	1050	1182	1143	1159	1159	1184	767	417	173	179	5645				
260	928	1019	990	1004	982	1019	573	198	102	9045	1244				
250	814	889	881	847	820	814	362	494.6	5645	404.2					
240	716	774	745	729	691	643	179		1244						
230	643	679	652	634	573	477	83.8								
220	595	608	580	548	495	446	1244								
210	531	540	514	483	429	268									
200	482	487	462	429	375	214									
190	437	437	412	381	331	173									
180	393	393	369	343	290	146									
170	354	354	335	310	251	121									
160	319	317	301	278	215	107									
150	281	286	269	250	185	97.2									
140	240	248	237	221	164	93.0									
130	214	217	214	196	154	85.8									
120	200	203	179	183	14										

## ELECTRON DENSITY

[illegible]

## ELECTRON DENSITY

	PUERTO RICO				60 W				16 SEPT 1959			
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	S				S				B			
HMIN	115	108	110	116	109	116		219	238	267	280	278
HMAX	352	372	372	386	351	343		357	381	402	412	389
SHMAX	2482	2746	2668	2884	2200	1894		1236	888	843	754	637
KM												
420											960	
410										1072	960	
400										1072	950	
390				2430					1119	1060	927	960
380		2327	2361	2400					1119	1030	888	958
370		2327	2361	2426					1107	979	839	940
360	2430		2327	2361	2291	2294		1528	1074	948	770	903
350	2430	2268	2294	2279	2293	1969		1522	1017	834	679	847
340	2403	2203	2219	2183	2271	1967		1494	943	745	585	774
330	2340	2111	2109	2057	2213	1942		1443	858	643	477	667
320	2233	2004	1976	1907	2114	1881		1368	774	524	348	540
310	2096	1861	1820	1747	1985	1794		1270	670	403	219	389
300	1924	1702	1646	1555	1820	1680		1155	562	274	119	229
290	1739	1500	1446	1376	1631	1562		1019	458	161	60.0	97.2
280	1519	1359	1274	1208	1404	1401		861	335	77.6	3.1	26.3
270	1321	1162	1096	1034	1201	1240		716	219	30.9		
260	1111	1004	931	875	990	1050		540	119			
250	960	861	794	742	807	861		375	63.8			
240	834	742	679	631	655	679		179	12.4			
230	716	643	599	547	540	540		83.8				
220	629	568	529	483	454	417		12.4				
210	553	513	477	432	395	335						
200	483	464	434	392	350	276						
190	422	424	396	354	314	232						
180	373	389	362	319	280	195						
170	332	354	332	289	251	164						
160	294	317	305	260	224	139						
150	259	278	276	232	196	118						
140	225	240	246	207	173	108						
130	207	216	217	189	156	102						
120	170	201	194	143	143	90.5						
110		149	40.2		60.0							



## ELECTRON DENSITY

PUERTO RICO				60 W				19 SEPT 1959				
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
OVAL	F	F		F	F		F	F	F		A	A
HMIN			246	290	268			119	116	118	111	
HMAX			348	422	417			297	847	327	351	
SHMAX			562	589	764			780	1620	1798	2300	
KM												
430				755								
420				755	834							
410				728	852							
400				710	822							
390				682	804							
380				643	778							
370				596	743							
360				534	700						2000	
350			885	462	648				1420		2000	
340			879	580	587				1417		1989	
330			854	286	514				1404	2000	1961	
320			809	189	437				1380	1992	1914	
310			747	104	544				1365	1953	1850	
300			661	53.1	240			982	1293	1819	1746	
290			562		145			978	1240	1786	1669	
280			432		65.7			958	1175	1656	1555	
270			262		12.4			922	1096	1465	1420	
260			112					868	1004	1260	1274	
250			40.2					800	885	1073	1080	
240								716	754	875	931	
230								596	651	704	794	
220								462	497	562	661	
210								555	589	467	551	
200								226	502	589	456	
190								165	240	323	582	
180								150	191	272	325	
170								107	155	227	272	
160								92.8	134	187	225	
150								82.8	123	165	195	
140								77.6	118	154	178	
130								72.5	112	146	170	
120								60.2	44.9	60.0	162	

## ELECTRON DENSITY

	PUERTO RICO				60 W				19 SEPT 1959			
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
HMAL		A	A					A				
OMIN	110	110	110	110	115	115		254	247	253	288	507
HMAX	360	360	360	375	367	556		399	407	417	426	418
SHMAX	2515	2595	2742	2619	2423	1709		1274	970	847	682	633
KM												
450											917	
420										960	914	917
410										957	895	912
400									1167	940	937	889
390									1541	1163	900	847
380									1537	1142	908	800
370												
360			2596							1320	1104	860
350		2396	2595	2500					1295	1050	805	645
360	2161	2394	2372	2492	2450	1669			1254	978	735	548
350	2149	2368	2322	2452	2424	1667			1200	892	661	446
340	2115	2310	2243	2577	2387	1651			1145	781	582	544
350	2054	2224	2137	2262	2316	1618			1065	661	492	240
420	1964	2089	2014	2112	2212	1658			960	529	408	152
310	1853	1924	1857	1942	2075	1493			854	405	527	88.5
500	1721	1752	1669	1739	1907	1408			691	286	240	53.1
290	1572	1555	1483	1512	1708	1307			540	189	161	12.4
280	1411	1559	1301	1291	1490	1175			348	127	102	
270	1254	1143	1096	1096	1265	900			170	80.7	65.7	
260	1096	982	946	917	1073	903			54.8	52.2	40.2	
250	949	834	807	767	875	754				18.0		
240	824	716	707	655	716	608						
230	726	629	625	567	596	477						
220	650	564	557	505	500	548						
210	580	517	508	451	423	255						
200	519	480	465	409	362	194						
190	467	445	425	372	310	155						
180	417	405	389	335	276	125						
170	377	365	350	301	245	104						
160	555	328	510	275	209	91.5						
150	294	290	270	243	179	83.1						
140	253	251	257	213	160	79.5						
130	217	217	212	192	151	75.4						
120	202	203	194	179	155	71.8						
110	49.6	49.6	12.4	12.4								

## ELECTRON DENSITY

	PUERTO RICO				60 W				20 SEPT 1999			
TIME	0000	0100	0200	0500	0400	0500	0600	0700	0800	0900	1000	1100
OUAL									A	A		
HMIN	270	266	291	247	514	515	325	115	116		116	115
IMAX	388	395	595	558	460	477	483	450	464		508	575
SHMAX	583	605	489	375	484	574	655	1457	2166		5236	3964
KM												
580												1595
570												1593
560												1391
550												1387
540												1382
530												1374
520												1365
510											1420	1553
500											1419	1340
490						643	726					1414
480						641	718					1406
470									1191			1395
460					565	630	702		1191			1381
450					561	610	676	875	1187			1363
440					549	580	643	873	1178			1341
430					527	544	598	867	1166			1317
420					499	497	546	857	1149			1289
410					465	446	489	842	1128			1257
400		834	764		422	589	423	820	1103			1220
390	885	833	762		372	335	353	794	1073			1179
380	879	821	745		316	280	278	767	1039			1138
370	851	794	712		262	219	212	740	1000			1091
360	799	749	661	573	214	170	149	711	955			1050
350	732	691	590	569	161	122	97.2	682	908			1009
340	643	622	508	551	107	77.6	80.0	649	860			968
330	548	529	398	519	63.8	51.7	29.1	615	805			929
320	437	432	286	477	34.6	21.7		577	749			884
310	323	323	161	417				536	695			858
300	198	219	65.7	348				490	638			788
290	104	119		270				442	585			735
280	53.1	67.6		198				594	535			684
270		26.3		127				346	482			633
260				71.4				302	432			579
250				19.3				259	381			531
240								228	345			488
230								201	513			457
220								177	290			432
210								155	249			407
200								138	245			381
190								123	216			352
180								109	187			321
170								97.2	161			289
160												

## ELECTRON DENSITY

	PUERTO RICO				60 W				20 SEPT 1999			
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
OVAL				S		A		A		A		
HMIN	110	110	111	109	109	111		218	267	248	266	263
HHMAX	439	569	372	536	541	347		547	464	377	432	421
KM	2250	2097	2320	1417	1456	1502		767	693	609	544	418
470									645			
460									642			
450									634			
440	1265								620		573	
430	1263								596		573	446
420	1254								567		569	446
410	1241								533		558	443
400	1221								495		540	435
390	1196								451		515	422
380	1164		1697						403	716	486	402
370	1127	1669	1697						356	714	450	379
360	1085	1665	1690						310	705	408	352
350	1044	1650	1727		1252	1143		1050	270	689	356	317
340	979	1606	1644	1191	1252	1140		1045	233	664	304	281
330	922	1555	1605	1189	1245	1127		1024	198	632	251	240
320	857	1491	1555	1174	1225	1102		986	164	595	203	202
310	794	1418	1498	1146	1193	1065		929	134	546	152	161
300	724	1319	1438	1107	1148	1019		858	107	477	108	117
290	661	1204	1357	1055	1096	960		754	81.3	396	71.4	80.7
280	603	1073	1251	982	1019	896		643	57.4	286	49.6	83.8
270	544	944	1137	909	934	820		500	18.0	161	17.0	28.3
260	515	814	1004	834	850	747		335		71.4		
250	483	698	875	754	754	655		198		21.7		
240	461	608	774	679	670	587		107				
230	442	535	672	608	587	500		60.0				
220	429	486	590	546	508	410		12.4				
210	415	450	521	485	459	535						
200	399	422	459	432	378	268						
190	380	597	408	384	527	219						
180	358	570	362	345	282	182						
170	318	339	324	303	244	156						
160	276	307	292	266	210	136						
150	232	276	260	235	182	121						
140	201	240	233	209	164	111						
130	190	214	211	194	154	95						
120	181	192	186	173	146	99.0						
110	12.4	40.2		60.0	60.0							







## ELECTRON DENSITY

	PUERTO RICO												60 W												25 SEPT 1959											
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100		0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100											
QUAL	A												A																							
HMIN	327	308	241	208	215	246	272	206	A					117	114	116																				
HMAX	459	421	356	370	402	456	417	345						349	340	371																				
SHMAX	580	634	635	567	498	497	489	957						1842	2192	2750																				
KM																																				
460	774													394																						
450	768													394																						
440	745													391																						
430	711	875													386																					
420	658	875													379	565																				
410	599	866													469	369	563																			
400	524	843													469	355	555																			
390	446	806													466	340	540																			
380	368	754													458	323	519																			
370	286	686													446	304	492																			
360	198	590	875	554	430	283	455													420	380	2380														
350	112	487	872	547	412	257	408	1050													1669	2294	2340													
340	60.0	371	857	533	386	229	355	1048													1661	2294	2274													
330	19.3	251	826	515	355	201	292	1037													1635	2275	2182													
320		135	788	495	321	174	224	1016													1591	2221	2057													
310		26.3	724	471	282	146	161	980													1524	2125	1907													
300			643	440	246	120	102	936													1446	2004	1747													
290			540	405	211	97.2	67.6	885													1341	1846	1555													
280			437	362	175	73.9	42.1	827													1229	1650	1359													
270			323	310	143	55.6		761													1119	1446	1184													
260			179	257	112	41.5		679													982	1240	1038													
250			71.4	203	83.8	12.4		573													847	982	907													
240				143	61.9			432													729	814	794													
230				88.3	44.9			240													634	688	698													
220				53.1	15.9			112													548	590	616													
210								44.9													477	508	540													
200																					410	441	465													
190																					342	384	400													
180																					280	335	346													
170																					235	291	302													
160																					205	251	262													
150																					161	211	223													
140																					151	178	195													
130																					139	168	184													
120																					71.4	143	143													

## ELECTRON DENSITY

	PUERTO RICO												60 W												25 SEPT 1959													
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300		1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300													
OUAL																																						
HMIN	116	116	114	114	115	114	116	218	224	253	249	223	240																									
HMAX	371	370	370	394	364	370	388	405	414	365	371	352																										
SHMAX	2671	2661	2707	3285	2357	2258	1528	1327	1062	870	784	588																										
KM																																						
420																									1240													
410																									1393 1239													
400																									1391 1224													
390																									1375 1192													
380	2327			2430	2534													1528 1375 1192																				
370	2327	2448	2409	2482	2177	1922	1502	1341	1143													1004																
360	2311	2430	2353	2428	2175	1914	1465	1224	993	1287	993	1287	993	885																								
350	2267	2354	2257	2355	2147	1888	1409	1143	889	1260	964	885																										
340	2197	2269	2132	2260	2090	1845	1347	1050	767	1206	911	871																										
330	2090	2144	1978	2148	2005	1786	1258	928	643	1124	847	838																										
320	1962	1985	1803	2018	1916	1702	1162	814	519	1016	770	782																										
310	1816	1820	1631	1880	1721	1607	1050	691	389	889	679	716																										
300	1669	1636	1446	1735	1572	1501	931	573	274	716	582	625																										
290	1501	1446	1260	1572	1429	1381	807	456	179	540	477	529																										
280	1321	1274	1111	1411	1269	1262	691	362	112	362	362	408																										
270	1143	1096	975	1240	1143	1131	573	262	68.6	189	262	274																										
260	993	960	844	1034	1004	1004	446	170	40.2	71.4	179	143																										
250	865	834	745	889	861	875	323	107																			107 63.8											
240	754	733	665	754	745	742	209	67.6																			67.6 3.1											
230	670	652	590	634	643	619	97.2	34.6																			40.2											
220	590	573	521	532	548	497	26.3																															
210	521	508	465	454	469	398																																
200	462	451	412	395	396	318																																
190	412	403	369	341	335	246																																
180	366	362	332	302	282	195																																
170	324	326	294	268	240	163																																
160	286	293	255	237	209	142																																
150	253	256	222	207	179	126																																
140	222	225	198	181	159	112																																
130	200	206	188	170	151	103																																
120	143	167	161	143	135	77.6																																

ELECTRON DENSITY													ELECTRON DENSITY												
PUERTO RICO													PUERTO RICO												
60 W													60 W												
27 SEPT 1959													27 SEPT 1959												
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL											A	A	QUAL		A	A	S								
HMIN	253	232	201	239	277	363	281	116	110	109			HMIN				118	112	118	119	219	236	244	259	272
HMAX	365	319	328	362	425	491	396	294	299	327			HMAX				371	349	355	351	379	369	401	389	364
SHMAX	626	507	451	243	242	215	274	669	992	1562			SHMAX				2408	2626	2075	1696	1236	922	957	810	611
KM													KM												
500						268							410									1061			
490						268							400									1061			
480						266							390									1053	1061		
470						259							380			2177				1341		1033	1054		
460						248							370			2177				1334	1191	999	1031	1143	
450						233							360			2160		1815	1555	1310	1183	949	990	1139	
440						214							350			2114	2571	1813	1555	1268	1155	893	936	1102	1050
430					257	191							340			2041	2556	1795	1546	1205	1108	826	858	1022	1049
420					256	166							330			1929	2502	1758	1520	1133	1041	739	774	917	1030
410					253	135							320			1799	2403	1703	1479	1041	949	643	655	774	988
400					248	107	368						310			1652	2260	1625	1418	939	844	540	540	608	924
390					239	80.7	367						300			1483	2096	1534	1348	834	729	437	403	403	834
380					225	55.9	361						290			1324	1924	1423	1265	716	608	335	240	198	716
370	960			304	211	30.9	349						280			1179	1715	1303	1155	608	477	229	127	71.4	573
360	958			304	195		331						270			1034	1512	1186	1050	508	335	143	60.0		389
350	936			301	175		310						260			889	1321	1061	928	398	198	77.6	5.5		209
340	891			293	155		282						250			764	1096	939	807	286	97.2	40.2			77.6
330	826		548	279	134		240			1669			240			661	931	820	688	161	40.2				
320	735	960		546	262	112	194			1662			230			573	794	704	573	71.4					
310	631	948	538	242	90.5		138			1630			220			502	688	585	467	12.4					
300	508	905	522	216	67.6		83.8	960	1215	1571			210			442	594	477	380						
290	375	834	502	189	47.7		46.5	959	1207	1483			200			394	516	396	302						
280	240	729	481	157	12.4			939	1177	1367			190			350	446	330	240						
270	104	590	442	123				898	1123	1224			180			310	389	281	195						
260	49.6	417	389	90.5				834	1050	1065			170			274	335	240	161						
250		198	327	54.8				742	949	903			160			237	294	210	138						
240		71.4	262	5.5				596	834	754			150			207	253	182	121						
230			186					462	679	631			140			192	224	163	109						
220			104					344	529	532			130			182	209	150	102						
210			53.1					240	408	454			120			112	179	97.2	49.6						
200								170	310	389															
190								124	240	325															
180								97.2	191	274															
170								82.9	155	227															
160								74.1	131	192															
150								68.8	115	163															
140								65.0	108	142															
130								61.2	103	133															
120								40.2	97.7	121															
110									12.4	40.2															

ELECTRON DENSITY												
	PUERTO RICO				60 W				28 SEPT 1959			
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL							S	S				
HMIN	259	266	234	206	242	277	302	116	113	114	115	112
HMAX	371	390	335	291	385	419	383	303	358	311	331	350
SHMAX	473	474	476	251	195	179	164	717	1770	1532	1941	2147
KM												
420						193						
410						193						
400						189						
390		679			219	184	286					
380	698	672			218	176	285					
370	697	652			216	165	280					
360	688	615			210	153	267		1420			
350	664	568			201	139	248		1416			1907
340	625	502	754		189	124	222		1402		2032	1896
330	573	424	752		174	107	184		1376		2031	1862
320	508	342	737		157	90.5	138		1340	1907	2012	1807
310	424	262	705		140	74.5	71.4	85.4	1292	1906	1961	1723
300	342	173	661	484	121	58.5		85.4	1233	1881	1874	1623
290	248	107	594	484	101	44.2		84.2	1164	1814	1756	1501
280	152	60.0	508	474	82.1	12.4		81.6	1086	1704	1612	1367
270	71.4	23.5	389	44.9				77.4	996	1555	1444	1228
260	12.4		251	406	48.3			72.2	909	1376	1260	1101
250		119	342	26.3				650	826	1143	1065	975
240		49.6	262					565	747	939	889	847
230					170			477	661	754	735	735
220					85.8			375	582	596	616	634
210					40.2			286	487	484	532	548
200								219	389	389	462	477
190								170	294	316	395	417
180								130	235	258	341	366
170								108	192	215	294	318
160								92.3	163	179	251	278
150								82.3	140	155	216	237
140								77.1	125	140	189	207
130								71.9	118	132	171	189
120								43.3	97.2	120	143	165



## ELECTRON DENSITY

PUERTO RICO											
60 W											
29 SEPT 1959											
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000 1100
QUAL				A				A	A	A	
HMIN	273	239	204		236		278			117	117 117
HMAX	374	323	302		403		371			310	326 369
SHMAX	549	549	360		222		166			1419	1807 2488
KM											
410					214						
400					213						
390					212						
380	885				208		274				
370	884				202		274				2000
360	864				193		270				1993
350	824				183		259				1969
340	762				171		243				1928
330	679	1096			158		221			1846	1864
320	573	1094			142		187			1841	1793
310	446	1064	557		127		147			1786	1811 1698
300	310	996	556		110		101			1765	1744 1589
290	161	889	549		94.2		60.0			1704	1657 1460
280	60.0	735	530		79.2		12.4			1593	1543 1329
270		540	504		65.1					1460	1416 1208
260		286	467		52.2					1280	1257 1096
250		90.5	411		40.2					1096	1111 971
240		12.4	342		12.4					917	960 854
230			248							698	807 742
220			119							540	679 643
210			49.6							437	573 540
200										355	477 462
190										295	406 389
180										249	346 340
170										213	295 294
160										176	253 253
150										161	216 219
140										153	196 196
130										145	185 185
120										71.4	143 71.4

## ELECTRON DENSITY

	PUERTO RICO				60 W				29 SEPT 1959			
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
OUAL		A	A			A		A		A	A	A
HMIN				116	118	117	116	229	228	252	267	281
HMAX				377	357	354	344	358	377	394	397	380
SHMAX				2895	2437	2202	1754	1227	987	817	748	622
KM												
400										1004	1050	
390										1003	1045	
380				2500				1119		990	1020	1084
370				2495				1116	961	971	1069	
360				2466	2361	2032		1473	1098	917	903	1024
350				2415	2354	2030	1727	1467	1066	857	824	949
340				2340	2317	2009	1725	1444	1019	786	716	844
330				2238	2248	1966	1705	1402	960	698	596	716
320				2118	2148	1897	1661	1341	883	596	477	540
310				1969	2018	1804	1591	1263	794	487	323	323
300				1786	1866	1682	1510	1164	698	389	198	152
290				1578	1685	1555	1411	1050	596	274	117	65.7
280				1362	1490	1401	1296	903	497	170	63.8	
270				1162	1280	1254	1159	754	389	90.5	19.3	
260				982	1073	1111	1027	557	274	46.5		
250				820	889	960	889	335	161			
240				698	742	807	754	127	77.6			
230				601	619	679	625	12.4	21.7			
220				527	532	562	497					
210				471	459	469	398					
200				417	400	396	310					
190				375	348	330	246					
180				335	306	281	195					
170				296	266	240	164					
160				262	233	209	139					
150				226	201	184	121					
140				201	178	163	109					
130				188	168	151	102					
120				143	112	112	83.8					

## ELECTRON DENSITY

PUERTO RICO						60 W			30 SEPT 1959				
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	
QUAL	A	A		A		C	A	S		A			
HMIN		251	242	236	238	302	312		115	116	111	115	
HMAX		335	326	344	373	440	389		295	325	328	328	
SHMAX		446	363	299	250	228	162		919	1471	2077	1969	
KM													
440						251							
430						250							
420						245							
410						238							
400						227							
390						214	292						
380					286	200	288						
370					286	183	277						
360					283	161	257						
350					276	138	231						
340					395	267	114	195					
330		831	634	390	253	89.2	152			1669	2327	2161	
320		809	631	377	236	60.0	97.2			1664	2313	2147	
310		764	615	363	216	35.5				1628	2253	2094	
300		694	584	340	193				1143	1555	2146	1990	
290		585	540	313	166				1140	1446	1896	1846	
280		446	467	276	137				1113	1307	1806	1685	
270		240	375	235	106				1061	1157	1601	1501	
260		83.8	262	179	77.6				978	1004	1383	1301	
250			90.5	119	49.6				875	834	1167	1119	
240				44.9	12.4				764	691	960	939	
230									643	585	794	774	
220									529	492	655	643	
210									417	417	532	532	
200									362	362	446	454	
190									280	310	383	395	
180									232	266	330	346	
170									191	229	286	300	
160									161	196	248	253	
150									140	171	216	216	
140									125	156	194	195	
130									115	147	180	184	
120									90.5	117	148	135	

## ELECTRON DENSITY

	PUERTO RICO				60 W				30 SEPT 1959			
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A								A			
HMIN	116	116	111	117	114	115	210	239	265	271	254	279
HMAX	346	378	366	372	352	342	377	400	413	382	382	380
SHMAX	2120	2482	2417	2903	2288	1681	1586	1073	1004	693	734	600
KM												
420									1143			
410									1142			
400									1167 1131			
390									1159 1105 1072 960			
380	2063				2536		1528		1137 1064 1072		960 949	
370	2057				2294 2535		1525		1100 1010 1054		949 938	
360	2028				2287 2519 2161		1509		1043 943 1010		921 903	
350	1907		1978 2247		2480 2160		1756		1481 979		854 934 875 847	
340	1903		1907 2170		2418 2141		1755		1440 900		764 844 814 770	
330	1880		1797 2045		2334 2096		1737		1386 814		661 729 745 670	
320	1836		1680 1891		2214 2021		1693		1318 716		551 596 652 562	
310	1768		1555 1727		2050 1917		1612		1240 616		427 462 562 432	
300	1678		1407 1537		1929 1798		1512		1152 519		298 310 456 262	
290	1567		1269 1359		1747 1654		1400		1038 408		179 161 335 112	
280	1446		1096 1167		1534 1501		1269 917		310 97.2		71.4 219 12.4	
270	1329		960 1004		1316 1341		1111 781		212 44.9		104	
260	1191		854 847		1096 1175		960 643		135		49.6	
250	1050		754 729		896 1019		82		497 77.6			
240	903		670 643		745 861		679 362		12.4			
230	767		594 573		634 704		551 179					
220	643		535 522		540 585		454 77.6					
210	540		482 481		471 477		368					
200	465		434 438		411 389		292					
190	406		393 397		362 330		232					
180	357		354 357		318 282		189					
170	314		317 319		278 244		159					
160	267		276 291		243 216		136					
150	231		240 262		219 190		119					
140	211		218 235		207 165		108					
130	198		206 212		192 153		102					
120	71.4		161 192		127 127		89.2					

KP BELOW 4.5

AVERAGE ELECTRON DENSITY

PUERTO RICO

KP BELOW 4.5

DENSITY

AVERAGE ELECTRO

PUERTO RICO

SEPT 1959

60 W

60 W

60 W

60 W

60 W

60 W

60 W

SEPT 1959

TIME

TIME

TIME

TIME

TIME

TIME

TIME

TIME

COUNT

COUNT

COUNT

COUNT

COUNT

COUNT

COUNT

COUNT

MIN

MIN

MIN

MIN

MIN

MIN

MIN

MIN

MAX

MAX

MAX

MAX

MAX

MAX

MAX

MAX

SHMAX

SHMAX

SHMAX

SHMAX

SHMAX

SHMAX

SHMAX

SHMAX

KM

KM

KM

KM

KM

KM

KM

KM

500

500

500

500

500

500

500

500

950

950

950

950

950

950

950

950

1400

1400

1400

1400

1400

1400

1400

1400

2000

2000

2000

2000

2000

2000

2000

2000

2600

2600

2600

2600

2600

2600

2600

2600

3200

3200

3200

3200

3200

3200

3200

3200

3800

3800

3800

3800

3800

3800

3800

3800

4400

4400

4400

4400

4400

4400

4400

4400

5000

5000

5000

5000

5000

5000

5000

5000

5600

5600

5600

5600

5600

5600

5600

5600

6200

6200

6200

6200

6200

6200

6200

6200

6800

6800

6800

6800

6800

6800

6800

6800

7400

7400

7400

7400

7400

7400

7400

7400

8000

8000

8000

8000

8000

8000

8000

8000

8600

8600

8600

8600

8600

8600

8600

8600

9200

9200

9200

9200

9200

9200

9200

9200

9800

9800

9800

9800

9800

9800

9800

9800

10400

10400

10400

10400

10400

10400

10400

10400

11000

11000

11000

11000

11000

11000

11000

11000

11600

11600

11600

11600

11600

11600

11600

11600

12200

12200

12200

12200

12200

12200

12200

12200

12800

12800

12800

12800

12800

12800

12800

12800

13400

13400

13400

13400

13400

13400

13400

13400

14000

14000

14000

14000

14000

14000

14000

14000

14600

14600

14600

14600

14600

14600

14600

14600

15200

15200

15200

15200

15200

15200

15200

15200

15800

15800

15800

15800

15800

15800

15800

15800

16400

16400

16400

16400

16400

16400

16400

16400

17000

17000

17000

17000

17000

17000

17000

17000

17600

17600

17600

17600

17600

17600

17600

17600

18200

18200

18200

18200

18200

18200

18200

18200

18800

18800

18800

18800

18800

18800

18800

18800

19400

19400

19400

19400

19400

19400

19400

19400

20000

20000

20000

20000

20000

20000

20000

AVERAGE ELECTRON DENSITY										KP ABOVE 4.5																												
PUERTO RICO										SEPT 1959																												
TIME										60 W																												
COUNT										60 W																												
HMIN										60 W																												
HMAX										60 W																												
SHMIN										60 W																												
SHMAX										60 W																												
KM										60 W																												
90.7	89.9	67.9	61.9	49.4	65.6	76.8	7.7	112	130	163	204	175	100	302	168	156	165	160	128	149	147	145	112	112	112	112	112	114	156	21	6	8	4	10	6	7	7	8
900	121	115	87.0	79.4	63.3	84.0	98.4	102	143	167	208	262	320	225	242	260	215	200	213	205	166	141	188	188	188	188	188	188	188	188	188	188	188	188	188	188	188	
850	156	147	111	102	81.1	107	126	131	184	214	267	334	426	520	588	612	593	576	565	573	563	210	244	241	238	241	238	241	238	241	238	241	238	241	238	241	238	
800	199	188	142	130	104	137	160	168	235	275	340	426	520	600	369	399	426	354	338	340	330	268	311	307	303	235	235	235	235	235	235	235	235	235	235	235	235	
750	253	240	181	167	132	174	204	210	300	352	433	539	750	470	510	544	452	419	447	430	343	395	391	386	300	386	386	386	386	386	386	386	386	386	386	386	386	
700	321	304	280	212	161	220	257	274	382	527	685	839	1018	600	597	648	693	576	534	570	548	438	495	487	380	495	495	495	495	495	495	495	495	495	495	495	495	
650	404	381	288	270	211	274	320	346	483	572	685	839	1018	600	593	658	703	598	538	572	534	562	468	520	410	495	495	495	495	495	495	495	495	495	495	495	495	495
600	501	471	357	340	263	336	392	435	605	725	844	1018	1202	550	1151	1268	1364	1140	1064	1131	1063	854	899	919	893	724	724	724	724	724	724	724	724	724	724	724	724	
550	608	569	433	422	320	399	464	539	745	910	1013	1202	1450	540	1195	1310	1420	1187	1170	1179	1128	888	925	949	927	751	751	751	751	751	751	751	751	751	751	751	751	
540	630	588	448	440	332	411	478	562	775	951	1046	1240	1450	540	1195	1310	1420	1187	1170	1179	1128	888	925	949	927	751	751	751	751	751	751	751	751	751	751	751		
530	652	607	463	459	344	422	491	584	806	993	1079	1278	1450	540	1195	1310	1420	1187	1170	1179	1128	888	925	949	927	751	751	751	751	751	751	751	751	751	751	751	751	
520	673	624	477	473	357	433	503	607	836	1036	1111	1315	1450	540	1195	1310	1420	1187	1170	1179	1128	888	925	949	927	751	751	751	751	751	751	751	751	751	751	751	751	
510	694	645	501	509	365	441	511	614	849	1054	1139	1340	1450	540	1195	1310	1420	1187	1170	1179	1128	888	925	949	927	751	751	751	751	751	751	751	751	751	751	751	751	
500	713	661	505	515	378	451	523	654	897	1126	1171	1389	1450	540	1195	1310	1420	1187	1170	1179	1128	888	925	949	927	751	751	751	751	751	751	751	751	751	751	751	751	
490	732	676	518	534	389	458	531	677	927	1172	1199	1425	1450	490	1415	1575	1706	1431	1346	1426	1361	1062	1028	1083	1049	875	875	875	875	875	875	875	875	875	875	875		
480	749	690	529	552	399	464	537	701	956	1219	1226	1460	1450	480	1457	1624	1761	1482	1394	1476	1407	1095	1038	1063	1066	897	897	897	897	897	897	897	897	897	897	897	897	
470	765	702	539	571	408	468	540	723	985	1266	1252	1495	1450	470	1498	1672	1817	1530	1441	1525	1452	1128	1045	1119	1080	916	916	916	916	916	916	916	916	916	916	916	916	
460	778	711	548	589	416	468	539	746	1012	1314	1276	1528	1450	460	1538	1677	1817	1576	1487	1572	1496	1158	1046	1119	1080	916	916	916	916	916	916	916	916	916	916	916	916	
450	788	718	555	606	423	465	538	767	1039	1361	1299	1559	1450	450	1575	1671	1916	1620	1532	1616	1537	1187	1039	1134	1091	948	948	948	948	948	948	948	948	948	948	948	948	
440	798	728	566	617	436	465	538	778	1050	1383	1321	1570	1450	440	1605	1681	1962	1676	1573	1661	1557	1193	1026	1133	1083	977	977	977	977	977	977	977	977	977	977	977	977	
430	791	721	561	639	429	447	507	807	1087	1454	1337	1633	1450	430	1625	1681	1962	1676	1573	1661	1557	1193	1026	1133	1083	977	977	977	977	977	977	977	977	977	977	977	977	977
420	784	715	559	653	428	431	485	825	1109	1499	1353	1636	1450	420	1668	1868	2038	1735	1651	1738	1644	1255	997	1103	1028	950	950	950	950	950	950	950	950	950	950	950	950	
410	772	702	553	665	424	410	457	841	1129	1541	1365	1636	1450	410	1691	1893	2067	1764	1684	1767	1670	1361	1207	939	1071	982	982	982	982	982	982	982	982	982	982	982	982	
400	751	680	544	676	417	385	422	854	1147	1582	1374	1667	1450	400	1709	1913	2088	1788	1712	1796	1633	1280	895	1028	921	931	931	931	931	931	931	931	931	931	931	931	931	
390	722	648	530	684	407	357	382	866	1162	1619	1379	1676	1450	390	1722	1925	2101	1806	1734	1816	1708	1282	843	973	839	839	839	839	839	839	839	839	839	839	839	839	839	
380	683	507	510	690	394	324	335	876	1174	1653	1390	1678	1450	380	1729	1927	2102	1814	1750	1827	1716	1277	785	909	750	855	855	855	855	855	855	855	855	855	855	855	855	
370	644	471	509	683	364	293	295	882	1185	1705	1365	1674	1450	370	1739	1935	2109	1827	1767	1833	1712	1262	736	866	706	855	855	855	855	855	855	855	855	855	855	855	855	
360	577	490	452	683	344	253	255	882	1185	1705	1365	1674	1450	360	1739	1935	2109	1827	1767	1833	1712	1262	736	866	706	855	855	855	855	855	855	855	855	855	855	855	855	
350	508	422	412	672	345	215	173	887	1184	1723	1352	1632	1450	350	1657	1871	2040	1722	1701	1772	1641	1101	657	759	627	627	627	627	627	627	627	627	627	627	627	627	627	
340	438	345	367	645	323	178	141	884	1179	1733	1327	1590	1450	340	1657	1871	2040	1722	1701	1772	1641	1101	657	759	627	627	627	627	627	627	627	627	627	627	627	627	627	
330	371	264	315	600	302	144	106	876	1168	1734	1293	1532	1450	330	1595	1655	1849	1653	1653	1704	1528	1095	464	504	264	264	264	264	264	264	264	264	264	264	264	264	264	
320	296	184	262	540	280	112	71.8	863	1152	1719	1246	1457	1450	320	1509	1502	1744	1562	1572	1627	1440	1021	401	416	203	203	203	203	203	203	203	203	203	203	203	203	203	
310	230	115	204	464	255	78.0	44.2	846	1130	1680	1187	1371	1450	310	1410	1477	1622	1462	1491	1538	1299	933	336	336	146	146	146	146	146	146	146	146	146	146	146	146	146	
300	186	74.0	153	369	237	57.2	18.4	822	1098	1616	1115	1274	1450	300	1296	1348	1484	1329	1391	1431	1208	934	278	261	102	102	102	102	102	102	102	102	102	102	102	102	102	
290	145	60.7	111	148	150	21.9	11.7	748	1055	1513	923	1052	1450	290	1048	1074	1186	1101	1165	1190	938	607	142	142	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	
280	115	60.7	92.1	124	160	21.9	11.7	689	924	1287	864	949	1450	280	925	939	1103	1021	1022	1046	776	487	111	97	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	
270	97.7	50.2	29.5	131	7.5	621	835	1140	770	848	770	848	1450	260	816	823	998	799	895	895	893	603	364	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	
260	83.6	39.6	4.8	94.0	61.8	458	647	868	619	693	693	693	1450	250	716	724	778	691	765	755	424	243	34.4	41.6	41.6	41.6	41.6	41.6	41.6	41.6	41.6	41.6	41.6	41.6				





# TABLES OF IONOSPHERIC DATA

September 1959 -- July 1956

1

Table 1								
Anchorage, Alaska (61.2°N, 149.0°W)								
September 1959								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		4.0					2.4	2.50
01		(4.0)					2.8	(2.45)
02		(4.1)					3.5	(2.45)
03		(4.25)					2.3	(2.42)
04		(4.0)						(2.45)
05		(4.1)			129	1.50		(2.50)
06		4.6			121	2.05		2.62
07		5.05			3.9	115	2.50	2.60
08		5.75			4.2	112	2.80	2.70
09		5.9			(4.4)	109	3.05	2.65
10		6.0			(4.4)	107	3.25	2.65
11		6.4			4.6	107	3.32	2.70
12		6.2			4.6	109	3.38	2.55
13		6.4			4.7	109	3.30	2.65
14		6.35			4.6	107	3.10	2.65
15		6.65			(4.5)	109	2.90	2.75
16		6.8			---	109	2.75	2.85
17		7.0			---	113	2.42	2.90
18		6.45			<130	(2.00)		2.95
19		5.95			---	---		2.85
20		5.2						2.85
21		(4.2)						(2.85)
22		(4.0)					2.0	2.75
23		(3.9)					2.4	(2.72)

Time: 150.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 2								
Point Barrow, Alaska (71.3°N, 156.8°W)								
July 1959								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		5.3					7.2	2.70
01		5.45					6.6	2.60
02		5.5					4.6	2.60
03		5.5					3.6	2.60
04		5.2						2.55
05		5.2						2.50
06		5.25						2.45
07		5.4						2.40
08		(5.0)					3.6	(2.38)
09		(6.0)						(2.40)
10		(6.8)						(2.50)
11		5.7						2.25
12		5.15						2.25
13		5.7						2.35
14		6.0						2.38
15		5.9						2.45
16		5.8						2.40
17		6.0						2.55
18		6.0						2.58
19		5.85					3.4	2.60
20		5.4						2.62
21		5.6					3.2	2.70
22		5.55					4.1	2.70
23		5.5					2.9	2.62

Time: 150.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 3								
Thule, Greenland (76.6°N, 68.7°W)								
June 1959								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		380	5.9	250	(3.6)	111	2.45	2.80
01		(430)	5.6	245	3.7	111	2.45	2.65
02		360	(5.6)	250	(3.8)	109	2.50	(2.70)
03		410	5.65	240	4.0	109	2.70	2.68
04		430	5.4	235	4.0	105	2.60	2.60
05		445	5.3	235	4.3	105	2.90	2.62
06		455	(5.5)	230	4.5	105	3.00	(2.50)
07		520	5.35	230	4.5	103	3.15	(2.30)
08		520	(5.5)	220	4.6	101	3.30	(2.25)
09		500	5.2	220	4.7	101	3.32	2.40
10		510	5.5	225	4.7	101	3.40	2.32
11		560	(5.4)	220	4.7	101	3.40	(2.22)
12		550	(5.3)	215	4.7	101	3.45	4.3
13		510	(5.5)	220	4.7	101	3.40	5.6
14		540	5.5	<220	4.5	102	3.30	4.7
15		520	5.7	220	4.5	101	3.30	4.5
16		490	5.6	220	4.4	103	3.20	4.8
17		460	5.7	230	4.2	104	3.00	3.7
18		460	(5.5)	230	4.2	105	2.95	3.4
19		450	5.75	230	4.2	105	2.80	3.2
20		430	5.25	235	4.0	107	2.60	(2.60)
21		415	5.6	240	4.0	109	2.60	2.68
22		(400)	5.4	250	(4.0)	110	2.45	2.65
23		(380)	(5.8)	255	3.6	111	2.50	2.70

Time: 75.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 4								
Fairbanks, Alaska (64.0°N, 147.0°W)								
June 1959								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		4.6					2.6	2.62
01		(4.8)			---	E	2.2	(2.60)
02		(5.0)			---	E	2.6	(2.55)
03		(4.8)			---	E	4.0	(2.50)
04		(4.9)			---	---	3.4	(2.42)
05		5.3			3.2	<124	(1.00)	2.5
06		5.35			3.4	103	2.05	2.2
07		5.75			3.6	101	2.25	2.3
08		5.7			3.7	101	2.40	2.40
09		5.2			3.8	100	2.55	2.40
10		5.3			3.8	99	2.60	2.40
11		5.1			3.9	99	2.70	2.35
12		5.2			4.0	99	(2.60)	2.35
13		5.1			4.1	99	2.60	2.40
14		5.2			4.0	99	2.60	2.38
15		5.2			4.0	101	2.45	2.45
16		5.2			3.8	101	2.30	2.50
17		5.3			(3.8)	105	2.20	2.55
18		5.1			---	109	(1.95)	2.2
19		5.0			---	125	1.65	2.2
20		5.1			---	133	E	2.3
21		5.1			---	E	1.8	2.75
22		4.7			---	E	2.5	2.70
23		(4.6)			---	E	2.5	2.70

Time: 150.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 5								
Maui, Hawaii (20.0°N, 156.5°W)								
June 1959								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		8.65	300				2.2	2.65
01		8.9	<300				2.0	2.75
02		8.4	290				2.4	2.75
03		7.9	280					2.70
04		7.45	280					2.70
05		7.0	290				1.7	2.65
06		6.8	270				2.1	2.65
07		7.6	240				109	(2.85)
08		(390)	8.9	230	4.9	105	3.35	4.5
09		440	9.8	220	5.6	105	3.70	4.4
10		520	10.1	(215)	5.9	105	4.00	4.5
11		465	10.7	210	6.2	107	4.10	>4.8
12		415	11.4	210	6.0	107	4.25	4.6
13		405	11.8	<215	6.0	107	4.20	4.6
14		390	11.8	(220)	5.9	107	4.18	4.6
15		380	11.95	220	5.8	107	4.00	4.3
16		355	12.0	230	5.6	107	3.70	4.2
17		340	11.95	(240)	(5.3)	109	3.30	4.0
18		300	11.0	<255	<115	(2.70)	3.8	2.85
19		10.25	275		---	---	3.6	2.80
20		9.6	290				2.3	2.65
21		9.2	305				2.9	2.60
22		8.95	<320				3.0	2.60
23		8.65	<315				3.4	2.65

Time: 150.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 6								
Tulara, Peru (1.6°S, 81.3°W)								
June 1959								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		9.6	240					2.80
01		9.2	240					2.95
02		8.6	240					2.95
03		8.3	240					3.12
04		7.2	230					3.25
05		5.4	240					3.05
06		4.8	245					2.90
07		7.3	265			<131	2.30	2.4
08		8.8	240			115	3.10	3.2
09		9.65	230			111	3.55	3.7
10		10.2	220			110	3.85	2.30
11		10.55	210			109	4.00	2.20
12		10.8	210			109	4.10	2.15
13		10.9	205			109	4.10	2.15
14		(440)	11.0	(210)	(6.4)	109	4.00	2.15
15		11.15	210			109	3.70	4.0
16		11.1	220			110	3.40	3.8
17		10.95	230			113	2.95	3.8
18		10.7	230			<143	2.15	3.2
19		(10.5)	350					2.1
20		(10.05)	370					1.8
21		10.5	350					2.0
22		10.6	280					2.65
23		10.3	240					2.85

Time: 75.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 7									
Grand Bahama I. (26.6°N, 70.2°W)									
May 1959									
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00		8.3	205				2.2	2.65	
01		8.0	270				2.0	2.65	
02		7.7	270				2.6	2.65	
03		7.1	270				2.5	2.65	
04		6.8	280				(2.4)	2.60	
05		6.7	280				(3.1)	2.65	
06	---	7.5	255	---	119	2.25	2.3	2.80	
07	---	0.5	<240	---	107	3.00	3.2	2.00	
08	---	9.05	220	5.1	105	3.38	3.6	2.65	
09	360	9.0	<220	5.4	105	(3.70)	4.2	2.65	
10	410	10.2	215	5.9	105	4.00	4.3	2.60	
11	370	10.4	210	5.0	105	4.10	4.2	2.60	
12	375	10.0	215	6.1	105	4.20	4.4	2.60	
13	370	11.0	220	6.0	107	4.20	4.2	2.60	
14	360	11.05	220	6.0	107	4.10	4.3	2.60	
15	370	10.7	220	5.7	107	3.90	4.1	2.60	
16	355	10.3	220	5.5	107	3.50	4.1	2.65	
17	---	10.0	240	---	109	3.12	3.7	2.65	
18		9.3	255		111	2.55	3.2	2.70	
19		9.3	260				3.1	2.65	
20		0.75	<260				3.1	2.60	
21		8.5	280				3.0	2.60	
22		8.4	295				3.0	2.60	
23		0.3	295				2.9	2.60	

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 8									
Bogota, Colombia (4.5°N, 74.2°W)									
May 1959									
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00		9.0	230						2.80
01		9.0	250					2.0	2.90
02		0.4	235					1.8	2.95
03		7.4	230					2.0	3.00
04		6.65	240					2.0	2.70
05		5.9	260					2.4	2.65
06		7.1	260		120	2.10	2.5	2.95	
07		0.8	235		111	2.95		3.00	
08		10.0	225		105	3.50	3.8	2.80	
09		11.0	220		106	3.90		2.55	
10		11.7	<220		110	4.10	4.3	2.50	
11		12.45	(215)		109	4.25	4.4	2.50	
12	(415)	13.4	215	6.2	109	4.25	4.5	2.50	
13	(300)	14.0	(220)	(6.3)	109	4.20	4.4	2.50	
14	(450)	14.25	(215)	(6.9)	105	4.00	4.5	2.50	
15	(425)	14.4	(225)	(6.6)	105	3.80	4.5	2.50	
16	---	14.5	230	---	105	(3.32)	4.2	2.50	
17		13.5	250		111	2.75	4.0	2.58	
18		12.9	280		---	1.90	3.5	2.55	
19		12.55	310				3.2	2.55	
20		12.8	300				3.0	2.60	
21		12.65	280				3.0	2.70	
22		12.25	255				2.2	3.00	
23		11.3	235				2.1	3.08	

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 9									
Huancayo, Peru (12.0°S, 75.3°W)									
May 1959									
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00		8.6	215					3.10	
01		8.25	220					3.10	
02		7.2	220					3.10	
03		6.3	225					3.12	
04		5.7	220					3.10	
05		5.3	225					3.15	
06		5.5	255		---	---		2.90	
07		9.4	240		111	2.50	4.5	3.05	
08		11.5	230		107	(3.20)	7.5	2.90	
09		12.2	215		---	(3.60)	0.0	2.55	
10	---	12.2	210		---	(3.90)	8.5	2.40	
11	---	11.8	200		---	(4.00)	0.7	2.30	
12	---	11.2	200		---	(4.05)	0.7	2.30	
13	---	10.8	200		---	(4.00)	0.6	2.25	
14	---	11.0	200		---	(3.80)	0.7	2.25	
15		11.2	210		---	(3.60)	7.0	2.25	
16		11.2	230		---	(3.20)	7.5	2.25	
17		10.9	255		109	(2.50)	5.7	2.25	
18		10.3	310		---	---		2.25	
19		9.35	350					2.25	
20		9.0	315					2.40	
21		9.0	250					2.65	
22		8.8	220					2.80	
23		0.9	220					3.00	

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 10									
Ilo, Peru (17.4°S, 71.2°W)									
May 1959									
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00		10.0	235				1.8	3.00	
01		9.0	230					3.05	
02		7.5	230					3.15	
03		6.0	230					3.05	
04		4.05	240					3.10	
05		4.25	250					3.08	
06		5.6	205		---	---		2.80	
07		9.9	255		(129)	2.65		3.05	
08		12.7	245		123	3.20		2.90	
09		13.8	235		119	3.52	4.1	2.62	
10		13.0	225		119	(3.95)	4.5	2.45	
11		13.2	220		119	---	6.0	2.30	
12		12.25	220		115	---	7.2	2.20	
13		11.0	220		119	---	7.0	2.22	
14		11.8	220		119	(3.70)	4.4	2.20	
15		11.9	235		121	3.45	3.0	2.25	
16		11.9	260		124	3.00	3.4	2.25	
17		11.85	280		<153	2.20	4.1	2.30	
18		11.35	330				2.5	2.25	
19		10.85	325					2.30	
20		10.7	275				2.0	2.50	
21		10.5	245				2.6	2.70	
22		10.6	240				2.6	2.85	
23		10.4	235				2.1	3.00	

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 11									
Bogota, Colombia (4.5°N, 74.2°W)									
April 1959									
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00		11.3	225					3.00	
01		9.5	225				1.7	3.00	
02		8.4	225				1.8	2.90	
03		7.65	230				1.9	2.80	
04		6.45	230				2.0	2.80	
05		5.8	245				2.2	2.80	
06		7.6	270		<145	2.00	2.3	2.80	
07		10.55	240		111	2.90		3.00	
08		11.9	230		109	3.50		2.85	
09		12.95	225		107	3.90		2.70	
10		13.9	220		106	4.10		2.65	
11		14.6	215		105	4.25	4.3	2.55	
12		15.1	210		105	4.30		2.50	
13	---	16.0	(210)	---	109	4.25		2.52	
14	---	16.4	(215)	---	105	4.10		2.55	
15	(410)	15.95	(225)	---	106	3.80	4.3	2.55	
16	---	15.65	(230)	---	105	3.30	4.0	2.50	
17		14.9	245		(111)	2.80	3.8	2.50	
18		14.7	265		---	1.90	3.8	2.55	
19		16.15	310				3.2	2.60	
20		16.9	280				2.8	2.70	
21		16.6	245				2.3	2.90	
22		16.1	225				2.0	3.00	
23		13.4	220					3.00	

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 12								
Juliaca, Peru (15.5°S, 70.2°W)								April 1959
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		9.6	220				3.4	3.05
01		8.6	220				3.4	3.10
02		7.1	225				3.5	3.08
03		6.4	235				3.7	3.05
04		5.5	230				3.7	3.10
05		4.8	240				3.7	3.20
06		7.3	265		<137	1.90	4.4	3.00
07		11.1	240		115	2.05	5.0	3.00
08		13.3	230		(109)	(3.40)	7.4	2.70
09		14.4	220		---	(3.00)	8.7	2.50
10		13.0	210		---	(4.00)	8.9	2.30
11		12.65	210		---	(4.10)	9.0	2.25
12		12.3	205		---	(4.10)	9.0	2.25
13		12.3	210		---	(4.00)	9.0	2.20
14		12.5	<210		---	(3.80)	0.7	2.20
15		12.6	230		---	(3.50)	0.4	2.20
16		12.5	240		---	(3.05)	7.5	2.22
17		12.2	270		<141	(2.32)	5.4	2.20
18		(11.3)	335					2.20
19		9.9	345					2.10
20		10.5	295				2.9	2.35
21		10.8	240				3.1	2.65
22		10.05	230				3.4	2.85
23		9.95	220				3.4	2.95

Table 13

Tromsø, Norway (69.7°N, 19.0°E) February 1959								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	---	---	(320)				4.0	---
01		(5.6)	(310)				3.2	(2.50)
02		(5.5)	(340)				3.2	(2.35)
03		(5.1)	(315)	---	----		4.0	---
04		(4.8)	(325)	---	----		4.0	(2.45)
05		(3.9)	(315)				3.2	----
06		4.8	(290)				1.8	(2.50)
07		5.7	(280)	---	----		2.8	2.60
08		6.4	260	---	----		2.0	2.80
09	---	7.5	270	---	----			2.85
10	250	8.6	(260)	---		2.30		2.80
11	250	10.2	(250)	---		2.35		2.70
12	250	11.0	(250)	---		2.50		2.70
13	245	11.2	250	---		2.45		2.85
14	(245)	8.7	245	---		2.40	2.4	2.90
15	---	7.5	245	---		2.10	2.6	2.90
16		5.3	240	---	----		2.9	2.80
17		5.5	(235)	---	----		3.2	(2.90)
18		(5.7)	250				3.3	(2.60)
19		5.8	(245)				4.0	(2.70)
20		5.8	(295)	---	----		3.7	(2.65)
21		(5.6)	(275)	---	----		3.2	----
22		(5.2)	(295)				3.2	----
23		(5.0)	(330)				4.0	----

Time: 15.0°E.

Sweep: 0.7 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 15

Slough, England (51.5°N, 0.6°W) February 1959								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		4.8	295				<1.4	2.50
01		4.8	305				<1.4	2.40
02		4.5	300				<1.4	2.45
03		4.6	300				<1.4	2.50
04		3.9	290				<1.4	2.55
05		3.6	270				<1.4	2.55
06		3.6	<270				<1.6	2.50
07		5.3	260			1.80	2.4	2.75
08		8.7	230		115	2.20	2.6	3.10
09		11.0	230		110	2.70	2.8	(3.00)
10		12.3	225		110	3.00	3.0	3.00
11		12.8	225		105	3.30		2.90
12		13.4	230		110	3.40		2.90
13		12.9	225		110	3.30		2.90
14		13.0	230		110	3.15		2.90
15		12.7	230		115	2.95		2.90
16		12.2	225		120	2.50	2.5	2.95
17		11.4	225		---	2.00	2.2	2.95
18		9.7	215				2.2	2.90
19		(8.0)	220				<1.6	2.85
20		6.8	235				<1.6	2.70
21		6.1	250				<1.6	2.70
22		5.4	270				<1.6	2.60
23		5.0	270				<1.6	2.55

Time: 0.0°.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 17

Rogota, Colombia (4.5°N, 74.2°W) February 1959								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		12.0	210				2.3	3.15
01		8.7	205				2.2	3.20
02		6.0	205				2.6	3.00
03		5.1	240		---	----	2.5	2.82
04		4.45	<250				3.0	2.90
05		3.85	260				2.6	2.90
06		5.5	275				2.8	2.75
07		9.5	245		115	2.60		3.05
08		12.65	230		106	3.35		3.05
09		14.3	220		105	3.80		3.00
10		14.6	210		105	4.00		2.85
11		14.4	205		105	4.20		2.70
12	---	14.7	200	---	105	4.20		2.60
13	(410)	14.95	205	---	105	4.15	4.4	2.55
14	(400)	15.0	205	---	105	4.00	4.3	2.55
15	---	15.0	230		105	3.78	4.4	2.55
16		14.3	235		109	3.45	4.2	2.58
17		13.5	245		115	2.90	3.6	2.60
18		13.5	270		131	2.00	3.7	2.63
19		14.35	275				3.4	2.70
20		17.0	270				3.2	2.75
21		17.2	230				3.0	2.60
22		(15.5)	220				2.5	(2.90)
23		14.8	225				2.2	3.05

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 14

Kiruna, Sweden (67.0°N, 20.3°E) February 1959								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.0	350				4.0	(2.6)
01		6.0	340				3.2	(2.6)
02		6.0	325				2.8	2.6
03		6.0	340				3.8	2.6
04		6.0	310				3.8	(2.6)
05		5.0	300					2.6
06		5.0	300					2.6
07		5.8	<280		---	---		2.7
08		6.4	270			(2.0)		2.8
09	---	7.2	250	---			2.0	2.8
10		8.4	250				2.1	2.8
11		10.0	250				2.4	2.8
12		11.2	250				2.4	2.8
13		11.3	250				2.4	2.8
14		9.9	245				2.4	2.8
15		8.7	250				2.2	2.85
16		5.7	260				1.7	2.75
17		5.3	290		---			2.6
18		5.0	300					3.6
19		5.0	295					3.8
20		5.6	260					4.0
21		6.0	325					3.9
22		6.0	340					3.6
23		5.8	345					3.9

Time: 15.0°E.

Sweep: 0.8 Mc to 14.0 Mc in 30 seconds.

Table 16

Schwarzenburg, Switzerland (46.8°N, 7.3°E) February 1959								
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	5.7						3.0
01	290	5.5						3.0
02	300	5.4						3.0
03	300	5.2						2.9
04	290	5.0						2.95
05	280	4.8						3.0
06	280	4.2						3.05
07	260	4.7						3.0
08	230	8.1						3.4
09	220	11.4				100	2.5	3.45
10	210	13.2				100	3.0	3.4
11	210	13.6				100	3.2	3.4
12	210	13.9				100	3.4	3.3
13	210	13.5				100	3.4	3.3
14	210	13.3				100	3.3	3.3
15	220	13.2				100	3.1	3.3
16	(220)	(12.2)				100	2.7	(3.3)
17	(220)	(12.0)				---	---	(3.3)
18	---	---						---
19	(210)	(8.6)						(3.3)
20	220	7.7						3.3
21	230	7.1						3.2
22	240	6.5						3.2
23	260	6.0						3.0

Time: 15.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 18

Singapore, British Malaya (1.3°N, 103.0°E) February 1959								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		10.4	240				<1.1	2.65
01		10.5	260				<1.1	2.70
02		10.4	265				<1.1	2.80
03		10.1	250				<1.0	2.90
04		9.2	250				<1.1	2.80
05		8.2	240				<1.1	2.90
06	---	6.3	250	---				2.90
07	---	9.2	260	---	125	2.50		2.95
08	---	10.9	245	---	115	3.30		2.70
09	---	11.6	235	---	110	3.80		2.40
10	---	12.3	230	---	110	4.10		2.30
11	---	12.9	225	---	110	(4.30)		2.15
12	---	13.2	220	---	110	(4.35)		2.10
13	---	13.4	220	---	110	(4.35)		2.15
14	510	13.2	220	---	110	(4.20)		2.10
15	---	13.1	225	---	110	(3.85)		2.05
16	---	12.8	245	---	110	(3.50)		2.10
17	---	13.1	255	---	115	3.00		2.15
18	---	12.9	295	---	---	2.00		2.10
19	---	12.8	385				<1.5	2.05
20	---	12.7	400				<1.6	2.10
21	---	(12.3)	320				<1.6	(2.30)
22	---	(12.1)	250				<1.5	(2.55)
23	---	11.4	220				<1.2	2.70

Time: 105.0°E.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 19

February 1959								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	(11.0)	210						2.75
01	>12.2	255					(1.5)	2.80
02	11.4	250					(1.5)	2.80
03	9.7	245					(1.4)	2.94
04	8.4	230					(1.4)	3.00
05	>7.0	220					(1.6)	3.02
06	6.6	230			---	E	(1.6)	2.99
07	---	9.1	250		119	2.45	2.8	3.06
08	---	10.8	240		113	3.20	3.3	2.96
09	---	12.0	235		111	3.70	3.9	2.68
10	---	12.8	230	---	111	4.00		2.58
11	---	13.4	220	---	109	4.20		2.52
12	---	13.8	220	---	109	4.25		2.46
13	(410)	14.1	220	---	109	4.20		2.50
14	445	14.6	225	---	111	4.10		2.46
15	440	14.5	230	---	111	3.90		2.44
16	445	14.7	240	---	111	3.55		2.47
17	(430)	14.4	250		113	3.00	3.0	2.47
18	---	14.4	275		---	1.95	(2.4)	2.47
19	>13.0	340					(1.6)	2.40
20	>13.0	345					(1.6)	(2.52)
21	>14.0	295					(1.6)	<2.86
22	>14.0	235						<3.02
23	(13.3)	210						(2.93)

Time: 30.0°E.

Sweep: 1.25 Mc to 20.0 Mc in 3 minutes.

Table 20

February 1959*								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.0	250				<1.4	2.80
01		6.1	245				<1.6	2.80
02		5.4	240					2.70
03		5.0	<250				1.6	2.60
04		4.6	<290				2.0	2.50
05		4.4	<290				1.6	2.55
06		5.8	270				1.7	2.85
07		8.4	240				2.7	3.05
08	---	10.0	230	---			3.3	2.95
09	---	10.8	220	---			3.7	4.0
10	---	11.8	210	---			4.0	2.65
11	---	12.0	210	---			4.1	2.60
12	---	12.2	210	---			4.1	2.55
13	(365)	12.3	210	---			4.1	2.55
14	370	12.4	220	---			4.1	2.50
15	(355)	12.2	225	---			3.9	4.1
16	---	11.7	230	---			3.6	3.9
17	---	11.5	235	---			3.2	3.7
18	---	11.4	250	---			2.5	3.1
19		10.0	250				1.6	2.1
20		9.6	235					2.0
21		0.7	240					<1.0
22		7.2	(250)					<1.4
23		6.0	(200)					<1.6

Time: 30.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

\*Data reported beginning 1500 on the 12th through the 20th.

Table 21

February 1959								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		8.5	290					2.7
01		7.9	285					2.0
02		7.4	300					2.4
03		7.0	300					2.55
04		6.9	300					2.55
05		6.6	290				<1.60	2.60
06	---	7.3	250	---			2.20	2.80
07	(460)	0.2	250	4.8			2.90	3.5
08	(530)	20.5	230	5.1			3.40	4.2
09	(480)	29.3	230	5.9			3.70	4.5
10	450	10.4	225	5.9			3.95	5.0
11	420	10.6	225	6.2			4.05	4.5
12	370	10.3	230	6.4	(4.10)		4.5	2.60
13	390	10.8	230	6.1	4.20		4.5	2.60
14	380	10.8	230	6.0	4.00		4.5	2.65
15	(400)	10.0	230	5.5	3.80		>4.0	2.60
16	---	29.3	240	---			3.50	3.6
17		8.9	250				2.95	3.6
18		9.0	260				2.20	4.1
19		0.8	270				<1.70	2.8
20		20.5	295					2.55
21		8.6	310					2.55
22		8.5	315					2.55
23		28.5	310					2.5

Time: 150.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 22

February 1959								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.0	300				1.8	(2.80)
01		(7.0)	295				1.8	(2.90)
02		(6.5)	290					(2.95)
03		(5.0)	300				>2.1	(2.80)
04		4.4	300				1.6	---
05		(4.3)	300					(2.65)
06	---	(5.3)	<300	---			1.80	1.0
07	---	6.0	250	---			2.70	3.25
08	---	27.1	235	(4.8)			3.20	3.4
09	<400	0.0	220	5.4			3.60	3.9
10	410	20.4	(220)	5.9			3.80	4.1
11	390	20.5	---	5.9			3.05	4.2
12	300	20.5	(225)	6.2			3.95	4.2
13	380	20.5	---	6.2			>3.05	(2.75)
14	380	20.5	<250	6.0			3.90	3.9
15	395	20.5	225	5.9			3.75	(2.00)
16	390	20.5	230	6.0			3.75	(2.80)
17	(430)	20.5	240	---			3.25	3.6
18		>7.0	250				2.65	3.1
19		>7.0	250				1.70	<2.1
20		>7.0	260					---
21		>7.0	270					---
22		>7.0	285					---
23		>7.0	295					(2.70)

Time: 120.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 1 minute 45 seconds.

Table 23

February 1959								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		5.8	<270				2.1	2.70
01		5.4	<280				2.0	2.60
02		5.0	<200				2.0	2.60
03		4.6	<285				1.7	2.50
04		4.6	<300				<1.3	2.45
05		4.3	<310				<1.4	2.45
06		4.6	310				<1.4	2.60
07		7.2	255				2.3	2.90
08	---	9.1	245				3.0	2.80
09	---	10.7	235				3.5	2.65
10	(360)	11.4	230	---			3.8	3.9
11	---	11.0	220	---			4.0	2.55
12	(385)	12.0	220	6.3			4.0	2.50
13	380	12.1	225	6.4			4.1	2.45
14	395	12.1	215	6.1			4.1	2.45
15	390	12.0	230	6.2			4.0	2.50
16	(400)	11.4	235	5.9			3.0	2.50
17		10.9	240				3.6	2.50
18		10.7	250				3.0	2.60
19		10.3	255				2.2	2.70
20		9.8	250				<1.5	<1.0
21		8.5	(235)				<1.3	2.75
22		7.3	<250				1.6	2.75
23		6.5	<265				2.1	2.65

Time: 30.0°E.

Sweep: 1.0 Mc to 17.0 Mc in 7 seconds.

Table 24

February 1959								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(5.9)	300					---
01		>4.5	320					2.40
02		>4.4	320					(2.35)
03		>4.4	330					2.35
04		4.3	320					2.40
05		4.0	320					2.55
06	---	>4.5	280	---			2.25	2.70
07	---	>6.0	250	---			2.90	3.4
08	---	(6.3)	230	---			3.35	3.6
09	---	(7.2)	230	---			---	4.0
10	---	>7.5	220	---			3.75	4.0
11	---	(7.4)	220	---			---	4.3
12	(400)	0.2	(220)	---			---	4.2
13	(460)	(8.5)	220	---			---	4.2
14	(450)	8.3	220	---			3.90	4.0
15	480	7.9	230	---			3.75	2.60
16	(440)	7.9	230	---			3.50	2.60
17	(440)	7.9	230	---			3.20	2.65
18		(7.8)	250				2.60	2.7
19		(7.2)	280				---	2.75
20		>7.0	270					(2.60)
21		>6.5	280					---
22		>6.0	300					---
23		>5.7	300					---

Time: 150.0°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.



Table 25

Resolute Bay, Canada (74.7°N, 94.9°W)

January 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		5.8	250					(2.8)
01		5.8	250					(2.8)
02		5.6	250					(2.75)
03		4.9	260					
04		5.0	260					
05		(4.8)	250					(2.6)
06		(4.9)	250					
07		(5.8)	250					(2.8)
08		(5.3)	250			1.0		(2.65)
09		(5.8)	240			E		(2.5)
10		6.2	250			1.2	1.2	(2.6)
11		7.2	240			1.2	1.2	(2.75)
12		7.2	240			1.4	1.5	(2.8)
13		7.0	240			1.4	1.4	(2.7)
14		8.0	230			1.4	1.4	(2.7)
15		6.4	240			1.3		2.7
16		7.1	230					(2.6)
17		6.8	250					(2.8)
18		(6.3)	260					
19		6.2	260					(2.8)
20		6.1	240					(2.7)
21		5.8	250					(2.7)
22		5.2	260					
23		5.6	260					(2.8)

Time: 90.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 26

Godhavn, Greenland (69.3°N, 53.5°W)

January 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00								
01		(4.5)						(2.70)
02		(4.35)						(2.68)
03		(5.05)						(2.72)
04		(4.9)						
05		(3.9)						
06		(4.0)						
07		(4.3)						(2.70)
08		(4.4)						
09		(4.2)						
10		(4.8)						
11		(6.7)			119	----		(2.75)
12		(9.05)			113	1.65		(2.92)
13		(6.75)			107	----		
14		(6.85)			109	----		
15		(6.8)			(111)	----		(2.75)
16		(6.5)			<115	----		(2.75)
17		(7.7)						(2.75)
18		(5.95)						(2.75)
19		(6.15)						(2.68)
20		(6.5)						(2.68)
21		(6.0)						(2.65)
22		(6.0)						(2.60)
23		(6.6)						(2.60)

Time: 45.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.

Table 27

Kiruna, Sweden (67.8°N, 20.3°E)

January 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		4.5	340				3.4	2.4
01		5.7	340				3.4	2.6
02		5.4	340				2.6	2.55
03		5.4	310				1.7	2.6
04		5.8	285					2.6
05		5.1	<280					2.65
06		5.0	265					2.6
07		4.4	250					2.7
08		5.0	250					2.7
09		6.4	250			1.4		2.8
10		9.0	245			1.8		2.9
11		11.0	245			2.0		3.0
12		12.0	240			2.0		3.0
13		11.6	235			1.9		3.0
14		11.2	230			1.8		3.0
15		9.8	230			1.6		3.0
16		6.6	230					2.9
17		5.4	240					2.8
18		4.6	275				3.0	2.8
19		4.4	280				3.4	2.6
20		5.5	310				3.9	(2.8)
21		6.0	345				4.4	(2.6)
22		6.0	330				4.1	2.6
23		5.8	350				4.0	2.5

Time: 15.0°E.

Sweep: 0.8 Mc to 14.0 Mc in 30 seconds.

Table 28

Baker Lake, Canada (64.3°N, 96.0°W)

January 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		5.0	260					
01		(5.0)	260					
02		(5.0)	260					
03		(4.8)	230					
04		(4.5)	230			1.5	4.8	
05		(4.5)	230			1.8	4.7	
06		(4.6)	290		135	2.0	4.3	
07		(4.5)	270		120	2.1	4.3	
08		(4.9)	270		120	2.1	4.1	
09		(5.1)	280		140	2.2	4.2	
10		(6.3)	270		110	2.3	4.8	
11		(7.8)	270		110	2.4	3.9	
12		8.3	260		115	2.5	3.0	
13		11.2	250		110	2.5		(3.0)
14		12.5	250		115	2.3		(2.9)
15		(8.8)	260		120	2.1		
16		(7.0)	260		120	2.0	4.0	
17		(6.3)	280		120	2.0	4.5	
18		(6.0)	280		120	2.1	4.5	
19		(6.1)	260		120	1.8	4.4	
20		(6.0)	260			1.6	6.0	
21		(6.0)	260			1.8	6.0	
22		(5.2)	260				6.0	
23		(5.2)	270				5.0	

Time: 90.0°W.

Sweep: 1.0 Mc to 16.0 Mc in 16 seconds.

Table 29

Narsarsuaq, Greenland (61.2°N, 45.4°W)

January 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		(5.4)					3.2	(2.65)
01		(5.1)					3.3	(2.70)
02		(5.2)					3.3	(2.60)
03		(5.6)					3.5	(2.70)
04		(5.4)					3.0	(2.72)
05		(5.55)					3.5	(2.70)
06		(5.0)					>3.3	(2.80)
07		(5.1)					2.9	(2.80)
08		(5.4)						(2.85)
09		7.65			(125)	2.00		3.00
10		10.5			(129)	2.30		3.00
11		12.15			119	2.60		3.02
12		12.9			122	2.68		3.00
13		13.0			123	2.60		3.00
14		11.8			121	2.40		3.00
15		9.5			(129)	2.15		3.00
16		(7.8)			111	1.92	2.3	(2.95)
17		(5.8)					2.8	(2.75)
18		(5.8)					3.0	(2.75)
19		(5.7)					3.2	(2.72)
20		(5.4)					3.3	(2.70)
21		(5.7)					3.7	(2.65)
22		(5.8)					4.4	(2.70)
23		(5.45)					3.9	(2.52)

Time: 45.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 30

Churchill, Canada (50.8°N, 94.2°W)

January 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		5.2	300		140	2.0	4.6	
01		5.0	320		125	2.0	4.8	
02		5.0	300			1.6	5.0	
03		5.0	320		120	1.9	4.4	
04		5.0	330		120	2.0	4.4	
05		5.0	310		120	2.2	4.3	
06		4.6	330		120	2.2	4.4	
07		5.0	320		110	2.6	4.4	
08		5.6	300		120	2.3	4.4	
09		7.3	280			2.4	4.5	
10		9.0	260		120	2.4	4.2	(3.0)
11		11.0	250		120	2.6	3.6	(2.9)
12		12.1	250		115	2.8	3.0	(2.9)
13		13.0	250		125	2.8		(2.75)
14		14.0	250		125	2.6	4.0	(2.95)
15		13.1	240		125	2.3	3.3	
16		10.0	250		130	2.0	3.1	
17		6.7	250		140	1.8	4.0	
18		6.1	270		125	1.7	3.8	
19		5.3	290		120	2.2	4.0	
20		6.0	290		120	2.4	4.1	
21		5.3	290		120	2.3	4.4	
22		5.0	280		120	2.3	4.4	
23		5.2	280		130	2.2	4.4	

Time: 90.0°W.

Sweep: 1.0 Mc to 17.0 Mc in 16 seconds.

Table 31

Slough, England (51.5°N, 0.6°W) January 1959								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		4.1	280				<1.3	2.60
01		3.9	300				<1.0	2.50
02		3.4	305				<1.0	2.45
03		3.3	310				(1.0)	2.50
04		3.5	295				<1.2	2.60
05		3.4	<260				1.6	2.70
06		3.3	<250				2.2	2.70
07		3.7	230				2.2	2.60
08		0.0	230			1.85	2.8	3.00
09	(11.4)	225		120	2.55		2.8	(3.15)
10	13.1	225		120	2.90			3.05
11	13.6	225		120	3.05			3.05
12	13.6	225		120	3.20			3.00
13	13.7	225		120	3.05			2.95
14	13.9	230		120	2.90			3.00
15	12.9	225		120	2.60			2.95
16	12.0	225		120	2.10		2.2	3.00
17	10.6	215			1.65		2.1	(2.95)
18	8.0	220					2.2	2.95
19	6.9	225					<1.6	2.90
20	6.3	240					<1.6	2.80
21	5.2	240					<1.6	2.75
22	4.0	260					<1.6	2.60
23	4.5	270					<1.6	2.60

Time: 0.0°.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 32

Macau (22.2°N, 113.6°E) January 1959								
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	14.8						2.40
01	300	14.1						2.20
02	300	11.5						2.10
03	300	8.5						2.05
04	300	6.5						2.05
05	360	5.7						2.05
06	380	5.2						2.05
07	400	9.0						2.05
08	365	12.8			150	2.8		2.40
09	350	14.0	---	---	140	3.2		2.60
10	345	14.5	335	7.8	140	3.5		2.45
11	500	14.8	340	8.5	150	4.0		2.30
12	580	14.8	<350	8.4	---	---		2.20
13	600	15.0	350	8.3	---	---		2.15
14	600	15.0	350	8.0	---	---		2.15
15	600	14.8	350	7.5	130	3.7		2.15
16	530	14.8	345	7.0	140	3.3	4.0	2.25
17	470	14.8	360	7.0	140	2.8	3.5	2.20
18	350	14.8	---	---	---	---	3.0	2.20
19	370	14.8	---	---	---	---	3.0	2.35
20	365	14.8						2.50
21	300	14.9						2.70
22	290	15.0						2.65
23	300	14.8						2.45

Time: 120.0°E.

Sweep: 1.6 Mc to 20.0 Mc in 15 seconds.

Table 33

El Cerillo, Mexico (19.1°N, 99.6°W) January 1959								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.4	240					3.00
01		6.1	240					3.15
02		5.0	230					3.30
03		3.4	230					3.05
04		2.8	290					2.75
05		2.7	330					2.60
06		3.0	310					2.70
07		4.9	295					2.80
08		9.4	230					3.25
09		12.0	230					3.10
10		13.0	220					3.10
11		12.4	215					2.95
12		12.4	210					2.75
13		13.0	220					2.70
14	(12.6)	230					(2.65)	
15	11.9	230					2.60	
16	11.5	230					2.60	
17	11.2	235					2.70	
18	10.6	250					2.80	
19	9.0	240					2.90	
20	0.0	245					2.05	
21	8.5	250					2.95	
22	8.0	235					3.05	
23	7.0	235					3.00	

Time: 105.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 18 seconds.

Table 34

Bogota, Colombia (4.5°N, 74.2°W) January 1959								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		11.6	205				2.5	3.15
01		8.6	210				2.3	3.20
02		6.6	<220				2.5	3.05
03		5.5	225				3.1	3.00
04		4.5	235				3.0	3.00
05		4.3	245				3.4	2.92
06		6.9	270				2.4	2.80
07		10.85	245		111	2.70	3.1	3.00
08		13.6	230		105	3.40	3.6	3.08
09		14.0	220		105	3.80	4.0	2.95
10	---	13.5	210	---	105	4.10	4.2	2.75
11	(410)	13.35	210	(7.4)	105	4.25		2.60
12	420	13.6	200	6.8	105	4.30	4.3	2.50
13	425	13.5	(205)	(6.9)	105	4.22	4.4	2.45
14	420	13.8	<230	(6.7)	105	4.10	4.5	2.45
15	410	13.5	235	(6.6)	109	3.90	4.3	2.50
16	(400)	13.1	240	---	(111)	3.52	4.1	2.50
17		12.0	250	---	(115)	2.90	3.3	2.50
18		12.8	270		<141	1.90	3.6	2.65
19		13.0	260				3.6	2.75
20		13.2	260				3.0	2.75
21		(13.5)	235				2.5	2.70
22		>15.0	230				2.2	2.90
23		14.2	220				2.4	3.05

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 35

Singapore, British Malaya (1.3°N, 103.8°E) January 1959								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		10.8	265	---			<1.1	2.70
01		10.0	265	---			<1.0	2.70
02		9.2	265	---			<1.0	2.70
03		0.5	265	---			<1.0	2.65
04		8.1	260	---			<1.1	2.75
05		7.1	250	---			<1.1	2.80
06	---	6.7	270	---				2.70
07	---	9.4	260	---	120	2.60		2.75
08	---	10.4	250	---	110	3.40		2.65
09	---	10.0	240	---	110	3.85	3.8	2.30
10	---	11.3	230	---	110	4.15		2.05
11	---	12.2	230	---	110	4.35		2.00
12	---	12.1	225	---	110	4.45		2.00
13	500	11.0	220	5.0	110	4.40	4.5	1.90
14	420	11.6	220	---	110	4.20	4.4	1.95
15	515	11.6	235	---	110	3.95	4.4	1.95
16	---	11.7	250	---	110	3.55	3.7	2.10
17	---	11.9	265	---	115	3.00		2.15
18	---	11.9	300	---	---	1.90	3.0	2.10
19	---	11.6	380	---	---	---	2.3	2.10
20	---	11.3	400	---	---	---	3.0	2.15
21		>11.5	350	---	---	---	2.9	2.35
22		11.3	200	---	---	---	2.5	2.40
23		11.1	260	---	---	---	<1.6	2.55

Time: 105.0°E.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 36

Johannesburg, Union of S. Africa (26.2°S, 28.0°E) January 1959								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.0	(270)				1.9	2.55
01		6.5	<275				2.0	2.60
02		6.1	<270				2.1	2.55
03		5.7	<270				1.9	2.55
04		5.1	<260				2.0	2.50
05		5.1	300			E	1.8	2.50
06		6.9	260			2.3		2.00
07	---	0.6	245	---		3.1	3.5	2.75
08	---	9.6	230	---		3.6		2.60
09	390	10.6	230	6.0		4.0	4.3	2.50
10	400	11.0	225	6.1		4.3		2.40
11	405	11.2	220	6.4		4.4		2.40
12	420	11.2	220	6.4		4.4	4.8	2.35
13	425	11.1	215	6.2		4.4		2.35
14	430	10.8	215	6.2		4.3		2.35
15	420	10.6	220	5.9		4.1		2.40
16	410	9.8	230	5.0		3.9	4.2	2.40
17	395	9.4	235	5.5		3.4	3.8	2.45
18		9.0	255			2.8	3.2	2.50
19		9.2	285			2.0	2.0	2.55
20		9.2	<270				<1.9	2.60
21		8.8	<265				1.0	2.60
22		7.9	(270)				<1.4	2.60
23		7.4	(270)				1.9	2.60

Time: 30.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

Table 37

Drisbane, Australia (27.5°S, 152.9°E)

January 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		8.6	300				4.2	2.65
01		8.4	300				3.6	2.50
02		8.0	300				2.5	2.50
03		7.6	300					2.50
04		7.3	300					2.55
05		7.0	300			1.70		2.60
06	---	7.2	250	---		2.50	3.2	2.70
07	---	8.3	250	---		3.30	4.3	2.70
08	480	>8.5	230	5.6		3.80	4.3	2.60
09	395	>9.1	240	6.0		4.00	4.6	2.60
10	420	9.4	250	6.3		4.30	5.4	2.50
11	420	(8.8)	<250	6.4		4.40	5.1	2.50
12	410	10.7	250	6.4		4.35	4.9	2.50
13	405	10.7	230	6.4		4.30	5.2	2.50
14	400	>9.5	240	6.2		4.30		2.55
15	400	9.2	240	6.1		4.00	4.5	2.55
16	395	>8.5	230	5.8		3.70	4.4	2.55
17	---	8.5	250	---		3.25	3.8	2.55
18	---	8.4	270	---		<2.40	3.6	2.55
19	---	8.5	300	---		<1.70	4.0	2.50
20	---	8.8	330	---			3.3	2.50
21	---	8.9	335	---			4.0	2.60
22	---	9.0	320	---			3.5	2.65
23	---	8.8	305	---			4.1	2.60

Time: 150.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 38

Capetown, Union of S. Africa (34.1°S, 18.3°E)

January 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.1	<290				2.1	2.55
01		6.0	<305				2.2	2.50
02		5.7	<300				2.2	2.55
03		5.4	<295				2.5	2.60
04		4.8	<310				1.9	2.45
05		>4.6	(310)				2.1	2.40
06		5.9	295				2.0	2.60
07		7.6	255				2.8	2.60
08	---	(8.8)	245	---			3.4	2.60
09	---	10.0	240	---			3.8	2.45
10	400	>10.6	230	5.9			4.1	2.40
11	415	>10.8	225	6.4			4.2	2.35
12	420	10.9	225	6.4			---	4.5
13	435	>10.7	220	6.1			---	4.8
14	440	10.6	220	6.2			---	4.6
15	435	10.4	225	6.1			---	4.5
16	425	9.9	230	6.0			4.0	4.6
17	420	>9.5	240	5.6			3.8	4.0
18	---	8.9	250	---			3.2	3.7
19	---	>8.7	260	---			2.6	3.0
20	---	>8.3	275	---			1.8	2.4
21	---	>7.9	<260	---				2.0
22	---	>7.2	<270	---				2.0
23	---	6.6	<275	---			1.8	2.55

Time: 30.0°E.

Sweep: 1.0 Mc to 17.0 Mc in 7 seconds.

Table 39

Hobart, Tasmania (42.9°S, 147.2°E)

January 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		>6.0	320				4.0	(2.50)
01		>6.0	320				4.0	(2.50)
02		(4.6)	320				3.5	(2.30)
03		>4.5	320				3.0	(2.25)
04		>4.5	300			E		2.30
05		>4.5	290			1.90	2.5	(2.50)
06	---	(5.5)	260	---		2.70	2.8	(2.75)
07	---	>6.0	250	---		3.25	3.5	2.70
08	440	(6.6)	240	---		---	4.2	2.65
09	470	(7.3)	(250)	(5.3)		---	5.0	2.55
10	480	7.4	(230)	5.5		---	5.0	2.50
11	460	>7.5	(250)	(5.6)		---	5.0	2.50
12	540	7.4	(250)	5.8		---	5.0	2.40
13	500	7.6	(240)	5.8		---	5.0	2.40
14	480	7.5	(240)	5.8		---	4.5	2.45
15	500	>7.5	230	5.5		4.10		2.40
16	490	7.5	240	5.4		3.80	4.2	2.45
17	450	7.4	240	---		3.50		2.50
18	---	7.4	250	---		3.05	4.0	2.55
19	---	7.4	280	---		2.45	3.3	2.60
20	---	>7.3	300	---			3.5	2.55
21	---	>7.5	310	---			3.6	2.50
22	---	>7.5	320	---			4.3	(2.45)
23	---	>7.0	300	---			3.8	(2.45)

Time: 150.0°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 40

Wilkes Station (66.2°S, 110.5°E)

January 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		5.3	290		109	----	2.8	2.60
01		5.7	285		103	----	3.7	2.65
02	---	5.4	280		105	1.70	3.7	2.70
03	---	5.7	260		(115)	1.95	2.4	2.62
04	---	5.6	<260	---	111	2.50	2.7	2.60
05	450	5.7	245	4.2	105	2.80	3.8	2.50
06	495	6.3	235	4.5	103	3.00	3.6	2.38
07	530	6.1	225	4.7	101	3.32	3.6	2.35
08	540	6.0	225	4.8	101	3.55		2.30
09	575	6.2	230	5.0	101	3.75		2.30
10	550	6.15	220	5.0	101	>3.70		2.25
11	540	6.3	215	5.0	101	>3.80		2.30
12	530	6.25	(215)	5.0	101	3.80		2.25
13	490	6.7	(225)	5.0	101	3.65		2.30
14	515	6.3	<215	4.9	101	(3.58)		2.30
15	555	6.0	215	4.8	101	3.50		2.25
16	535	6.0	215	4.8	103	3.42		2.30
17	520	6.0	225	4.6	103	3.15		2.30
18	505	5.8	235	4.3	105	2.80		2.30
19	470	6.15	250	4.0	105	2.55	2.7	2.40
20	---	6.05	260		111	2.22	2.4	2.52
21	---	5.85	280		105	1.75	2.1	2.60
22	---	5.8	285		105	1.60	3.5	2.65
23	---	5.85	280		---	----	3.2	2.65

Time: 105.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 41

Copenhavn, Greenland (69.3°N, 53.5°W)

December 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(5.1)						(2.65)
01		(4.9)						----
02		(4.4)						
03		(4.7)						(2.60)
04		(4.55)						----
05		(3.4)						----
06		(4.55)						----
07		(4.4)						----
08	---	---						----
09		(4.9)						----
10		(6.15)						(2.70)
11		(8.3)						(2.90)
12		(6.8)			---	---		(2.95)
13		(7.15)			119			(2.90)
14		(6.4)			116	(1.80)		(2.90)
15		(5.2)			---	---		(2.75)
16		(5.3)						(2.58)
17		(5.25)					1.7	(2.60)
18		(5.7)					2.4	(2.80)
19		(4.9)						(2.55)
20		(5.3)						(2.52)
21		(5.3)						(2.75)
22		(4.95)						(2.70)
23		(4.4)						(2.70)

Time: 45.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.

Table 42

Freiburg, Germany (48.1°N, 7.6°E)

December 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		4.1	310					2.50
01		4.1	315					2.50
02		3.9	310					2.50
03		3.5	285					2.60
04		3.5	280					2.70
05		3.4	255					2.70
06		3.5	250					2.75
07		6.5	225					2.90
08		10.0	220		119	2.05	2.3	3.10
09	---	13.0	225		115	2.70	3.0	3.00
10	---	13.4	230		113	3.00	3.3	3.05
11	---	(13.1)	225		111	3.10	3.2	(2.95)
12	---	13.2	220		112	3.10	3.2	2.90
13		12.8	230		118	3.00	3.1	2.85
14		13.0	230		119	2.65	2.9	2.90
15		12.2	225		122	2.05	2.3	2.90
16		11.0	220		---	<1.50	1.8	2.95
17		9.2	220				2.0	2.90
18		7.4	230				1.8	3.00
19		5.9	230				1.7	2.90
20		4.9	<250					2.70
21		4.7	<280					2.60
22		4.5	285					2.60
23		4.3	300					2.55

Time: 0.0°.

Sweep: 1.25 Mc to 20.0 Mc in 3 minutes.

Table 43

Elisabethville, Belgian Congo (11.6°S, 27.5°E)

December 1958

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	8.5						2.47
01	275	8.0						2.51
02	270	7.6						2.52
03	270	6.7						2.48
04	270	7.1						2.60
05	(270)	9.0	250	---	135	2.0	2.6	2.60
06	305	10.0	245	---	110	3.6		2.50
07	340	10.1	240	---	110	3.9		2.35
08	405	10.7	230	6.2	110	4.0		2.23
09	430	11.0	230	6.4	110	4.0		2.17
10	450	11.4	240	6.2	110	4.2		2.16
11	450	11.7	250	6.1	110	4.1		2.16
12	445	11.5	250	6.0	110	4.0		2.19
13	430	11.4	240	5.6	110	4.0		2.18
14	430	11.2	250	5.4	110	3.6	4.0	2.18
15	400	11.0	260	---	115	3.0	3.9	2.19
16	335	11.0	290	---	125	2.2	3.0	2.25
17	320	11.0					2.1	2.32
18	320	>11.0					2.5	2.32
19	300	11.3						2.41
20	275	11.1						2.49
21	270	10.4						2.47
22	270	9.7						2.45
23	270	9.0						2.45

Time: 0.0°.

Sweep: 1.0 Mc to 20.0 Mc in 7 seconds.

Table 45

Christchurch, New Zealand (43.6°S, 172.0°E)

December 1958

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		(7.3)	300				3.1	(2.40)
01		7.3	320				3.0	(2.35)
02		7.0	310				2.4	2.30
03		6.6	310				2.5	2.35
04		6.3	300				<1.7	2.40
05		6.1	300					2.55
06		6.5	250	---	155	2.0		2.60
07	(500)	7.1	250	5.3	105	3.2	3.6	2.65
08	(490)	0.1	250	5.6	105	3.6	4.4	2.60
09	460	0.5	(250)	5.8	100	---	5.0	2.60
10	400	9.0	(230)	6.0	100	---	5.0	2.55
11	420	9.2	---	6.0	100	---	5.0	2.55
12	440	9.1	(230)	6.3	100	---	5.2	2.50
13	440	9.2	(230)	6.4	100	---	4.7	2.50
14	450	0.8	220	6.3	100	---	4.3	2.45
15	450	0.6	200	6.0	100	4.0	4.1	2.50
16	440	8.5	240	5.8	100	3.9		2.50
17	400	8.3	250	5.5	105	3.5		2.50
18	(370)	0.4	250	---	110	3.1	<3.5	2.55
19		0.4	270		115	2.6	3.1	2.55
20		(7.7)	300		---	---	2.5	(2.50)
21		---	300				3.2	---
22		---	310				4.1	---
23		(7.7)	320				3.1	(2.40)

Time: 180.0°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 47

Little America (70.2°S, 162.2°W)

December 1958

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(525)	5.35	250	(3.8)	103	2.50		2.30
01	(610)	5.05	245	(3.8)	101	(2.60)		2.38
02	685	4.9	250	3.9	101	2.80		2.35
03	(685)	(4.9)	255	(4.0)	101	2.90		(2.25)
04	(600)	5.3	260	4.3	101	3.00		2.45
05	(575)	5.4	255	4.5	101	3.10		2.40
06	500	5.6	250	(4.7)	100	3.20		2.60
07	480	6.2	240	4.9	99	3.25		2.45
08	480	6.6	235	4.9	100	3.40		2.45
09	505	6.7	230	4.9	99	3.40		2.40
10	(575)	6.5	230	4.8	99	3.50		2.32
11	520	6.3	230	5.0	99	3.50		2.32
12	520	6.3	230	5.0	99	3.45		2.35
13	550	6.45	230	5.1	99	3.40		2.35
14	515	(6.2)	225	5.0	99	3.40		2.30
15	510	(6.5)	230	4.8	99	(3.35)	3.6	(2.35)
16	505	6.2	235	4.7	99	3.20		2.35
17	500	(6.2)	240	4.6	101	3.10		(2.38)
18	490	6.1	240	(4.5)	101	3.00		2.32
19	460	6.4	250	4.3	101	2.90		2.35
20	440	6.6	250	(4.1)	101	2.80		2.35
21	450	6.2	250	4.0	101	2.70		2.35
22	480	(5.8)	<265	3.8	101	(2.50)		(2.32)
23	470	(5.65)	250	3.8	103	2.50		(2.40)

Time: 165.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 44

Grahamstown, Union of S. Africa (33.3°S, 26.5°E)

December 1958

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		(6.10)					2.1	(2.8)
01		(5.75)					1.9	(2.75)
02		(5.32)					1.8	2.7
03		(5.25)					1.8	2.7
04		4.98					1.9	2.6
05		(5.75)	---		---	(1.8)		(2.75)
06		(7.60)	(295)		125	(2.6)		(3.0)
07		(7.55)	255		<130	(3.2)	3.4	---
08		(9.35)	(255)		<130	(3.6)	(4.0)	(2.7)
09		(11.00)	---		<130	---		(2.8)
10		(10.75)	---		---	---		(2.7)
11		(11.05)	---		---	---		(2.65)
12		(11.10)	---		---	---		(2.7)
13		(10.95)	---		---	---		(2.6)
14		(10.30)	---		---	---		(2.6)
15		(10.05)	---		---	---		(2.6)
16		---	(260)		<130	(3.7)	3.8	---
17		(8.00)	260		<130	(3.3)	3.7	(2.8)
18		(7.55)	280		120	(2.7)	3.0	(2.9)
19		(7.00)	---		---	---	<2.0	---
20		(7.00)	---		---	---		(3.0)
21		(7.00)	---		---	---	2.1	(2.9)
22		(6.50)	---		---	---	<2.0	(2.9)
23		(6.20)	---		---	---	2.0	(2.9)

Time: 30.0°E.

Sweep: 1.5 Mc to 15.0 Mc.

Table 46

Wilkes Station (66.2°S, 110.5°E)

December 1958

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		5.2	290		115	---	2.1	2.60
01		5.35	295		111	1.70	2.1	2.55
02		5.4	280	---	110	2.05	2.5	2.65
03		5.5	260	---	105	2.40		2.70
04	(530)	5.7	255	3.8	104	2.65	2.7	2.50
05	495	5.75	240	4.2	103	2.88	2.9	2.45
06	520	5.7	240	4.6	101	3.15		2.38
07	530	6.0	225	4.0	101	3.40		2.30
08	585	5.75	(230)	4.3	101	3.55		2.25
09	500	5.0	230	4.9	101	3.60		2.20
10	530	5.05	(230)	5.0	101	3.70		2.20
11	590	6.0	<225	5.0	101	3.65		2.20
12	570	6.0	(230)	5.0	101	3.62		2.15
13	605	6.0	<225	4.9	101	3.62		2.22
14	550	5.8	(220)	5.0	101	3.65		2.18
15	520	6.0	215	4.0	101	3.50		2.32
16	520	6.2	(215)	4.6	101	3.30		2.30
17	490	6.2	230	4.6	103	3.05		2.40
18	510	6.0	245	4.1	105	2.75	2.0	2.35
19	500	6.15	255	3.0	107	2.55	2.7	2.45
20		6.0	(265)	---	110	2.28		2.50
21		5.0	205	---	110	1.90	1.9	2.55
22		5.7	290	---	107	---	2.0	2.52
23		5.55	300	---	109	1.50	2.4	2.50

Time: 105.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 48

Godhavn, Greenland (69.3°N, 53.5°W)

November 1958

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		(5.75)						(2.50)
01		(5.2)						(2.65)
02		(5.3)						(2.75)
03		(5.5)						---
04		(4.7)						(2.65)
05		(5.05)						---
06		(4.9)						---
07		(4.8)						---
08		---						---
09		(7.2)			---	---		(2.92)
10		(9.1)			115	---		(3.00)
11		(8.5)			(113)	(2.15)		(3.00)
12		(9.0)			(121)	(2.08)		(2.98)
13		(8.5)			<125	---		(2.88)
14		(7.55)			(125)	(2.00)	2.6	(2.90)
15		(6.65)			---	---	3.4	(2.88)
16		(7.4)			---	---	3.2	(2.90)
17		(8.3)			---	---	2.8	(2.80)
18		(6.85)			---	---	2.8	2.70
19		(7.4)			---	---	3.0	(2.90)
20		(7.45)			---	---		(2.70)
21		(6.4)			---	---		(2.80)
22		(5.85)			---	---		(2.65)
23		(6.2)			---	---		(2.70)

Time: 45.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.



Table 49

Freiburg, Germany (48.1°N, 7.6°E)

November 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		5.4	290					2.55
01		5.2	280					2.60
02		4.9	285					2.60
03		4.8	265					2.75
04		4.3	250					2.85
05		4.0	240					2.75
06		4.8	245					2.75
07		8.8	225		137	1.90	1.9	3.05
08		12.4	220		115	2.50	2.7	3.00
09	(14.0)	220		111	2.90	3.0		(2.90)
10	(14.5)	225		109	3.15			(2.95)
11	(14.4)	225		109	3.20	3.3		(2.85)
12	(14.1)	225			3.20	3.3		(2.75)
13	(13.9)	230		109	3.10			(2.75)
14	(14.0)	230			2.75	3.0		(2.80)
15	13.4	230			2.30	2.7		(2.85)
16	12.3	225				2.2		2.85
17	10.7	220				1.9		2.85
18	8.5	230						2.90
19	7.4	230					1.4	2.90
20	6.4	245						2.75
21	5.8	260						2.70
22	5.4	275						2.60
23	5.4	<290						2.55

Time: 0.0°.  
Sweep: 1.25 Mc to 20.0 Mc in 3 minutes.

Table 51

Grahamstown, Union of S. Africa (33.3°S, 26.5°E)

November 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(6.70)					<2.0	---
01		(6.40)					1.8	---
02		(6.00)					<2.0	(2.7)
03		(5.65)					1.9	(2.75)
04		5.30						2.7
05		(6.20)			---	<2.0		---
06		(8.10)			120	(2.6)		(3.05)
07		(10.48)			(125)	(3.2)		(3.2)
08		(11.30)			(125)	(3.6)		(2.9)
09		(11.50)	240		<125			(2.8)
10		(11.90)	(240)					(2.8)
11		(11.95)						(2.8)
12		(12.00)						(2.7)
13								---
14		(11.95)	(240)					(2.75)
15		(11.75)	(250)		<130		3.8	(2.7)
16		(11.50)	245		(125)	(3.4)	3.5	(2.8)
17		(11.50)			<120	(3.2)		(2.8)
18		(11.50)			125		<2.0	(2.9)
19		(11.40)					1.8	(3.0)
20							<1.9	---
21							1.8	---
22		(7.00)					1.9	---
23		(6.80)					<2.0	---

Time: 30.0°E.  
Sweep: 1.5 Mc to 15.0 Mc.

Table 53

Little America (78.2°S, 162.2°W)

November 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	(520)	(5.85)	<265	(3.6)	105	---	1.6	2.50
01	---	5.75	270	---	106	2.50		2.50
02	---	5.7	<280	---	101	(2.65)		2.52
03	---	5.4	280	---	101	(2.85)		2.65
04	---	5.7	280	---	101	3.00		2.62
05	---	6.0	270	---	101	3.05		2.65
06	(505)	6.5	260	4.8	101	3.10		2.60
07	(460)	6.9	245	4.9	101	3.10		2.55
08	440	7.6	240	5.0	101	3.18		2.55
09	460	7.8	235	5.0	101	3.25		2.50
10	465	7.65	235	4.8	101	3.30		2.50
11	445	7.35	230	5.0	101	3.25		2.50
12	445	7.3	230	5.1	101	3.30		2.50
13	460	7.45	230	5.2	101	(3.25)		2.50
14	445	7.0	230	5.2	101	3.30		2.50
15	(460)	(7.2)	230	5.0	101	3.10		(2.50)
16	440	7.05	245	4.8	101	3.00	3.4	2.50
17	435	7.05	250	4.7	101	3.05	3.3	2.50
18	430	7.4	260	4.4	101	2.90		2.50
19	410	(7.3)	260	4.2	101	(2.50)	2.7	(2.45)
20	430	(7.25)	270	3.8	101	(2.50)		2.50
21	(410)	7.0	270	3.8	104	2.40		2.50
22	(420)	(6.6)	270	(3.8)	105	(2.35)		2.50
23	(450)	(6.35)	270	(3.7)	103	(2.50)		(2.50)

Time: 165.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 50

Chiclayo, Peru (6.8°S, 79.8°W)

November 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(11.25)	290				4.0	(2.45)
01		10.0	275				4.5	2.60
02		9.9	245				4.1	2.75
03		8.8	235				3.8	3.00
04		7.7	230				3.8	3.05
05		6.3	230				3.4	3.18
06		7.4	280					2.85
07		11.4	260		<175	1.95		2.85
08		13.75	240		121	2.90	4.0	2.85
09		15.0	230		119	3.50		2.70
10		15.0	230		119	4.00		2.50
11	---	15.05	230		119	(4.25)		2.30
12	---	15.1	220		119	---		2.25
13	---	15.0	220	---	119	---		2.15
14	---	15.0	<225	(7.0)	117	---		2.10
15	---	15.0	230	---	119	---		2.10
16	---	>14.1	250		115	3.45	4.5	2.12
17		(13.3)	270		117	3.00	4.0	(2.10)
18		(12.8)	300		<169	2.10	3.6	(2.15)
19		12.0	<350				2.5	(2.22)
20		>11.85	400					(2.10)
21		11.9	(380)					(2.20)
22		>11.5	350				2.0	(2.25)
23		12.2	310				2.6	(2.40)

Time: 75.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 52

Wilkes Station (66.2°S, 110.5°E)

November 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(5.3)	275		119	---	1.8	2.55
01		5.6	<265		116	(1.40)	1.6	2.85
02		5.9	270		113	(1.70)	1.9	2.65
03		6.0	275		109	2.12		2.78
04	---	6.1	(250)	---	108	2.50		2.80
05	(450)	6.2	(245)	4.3	101	(2.72)		2.60
06	455	6.55	235	4.7	101	(3.00)	3.2	2.50
07	460	6.25	225	4.8	101	3.25		2.45
08	505	6.2	225	5.0	101	3.45		2.35
09	500	(6.25)	(225)	5.0	101	3.50		2.38
10	505	(6.2)	(225)	5.0	101	(3.50)		2.35
11	(520)	(6.05)	<220	4.9	101	(3.50)		2.18
12	515	(6.7)	<235	(5.0)	101	(3.52)		(2.25)
13	480	(7.3)	<225	(4.9)	101	(3.50)		(2.28)
14	480	(7.0)	215	4.8	101	3.45		2.35
15	480	(6.7)	220	4.7	101	(3.40)		2.30
16	460	(7.0)	235	4.7	101	(3.15)		2.30
17	460	7.0	240	(4.4)	103	(2.88)		2.42
18	445	7.1	255	4.1	107	2.58		2.45
19	(425)	6.6	260	---	111	2.35		2.60
20	---	6.3	280		<116	2.05		2.62
21	---	6.3	275		111	1.50	1.6	2.65
22	---	6.0	270		118	(1.40)	2.0	2.75
23	---	(5.9)	270		<121	---		(2.65)

Time: 105.0°E.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 54

Chiclayo, Peru (6.8°S, 79.8°W)

October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		>11.1	240				4.0	2.65
01		10.15	250				3.7	2.75
02		9.6	245				3.2	2.85
03		8.6	240				3.0	2.92
04		7.7	240				2.8	3.10
05		6.4	240				1.8	3.10
06		7.4	280					2.85
07		11.4	260		<165	(1.65)	2.2	2.85
08		14.0	240		125	2.85		2.95
09		15.2	235		121	3.50		2.80
10	---	15.4	230	---	119	4.00		2.60
11	---	15.45	220	---	119	(4.20)		2.35
12	---	15.0	(220)	---	119	(4.40)		2.10
13	---	14.0	215	(7.6)	119	(4.35)		2.00
14	---	13.6	<220	(7.6)	119	(4.20)		1.95
15		13.2	230	---	119	(3.85)		2.00
16		13.1	245		119	3.45		2.00
17		13.0	270		119	3.00	3.2	(2.05)
18		(12.9)	300		<162	2.10	2.6	(2.05)
19		>12.0	390					(2.05)
20		>12.0	440					
21		(11.9)	350					(2.08)
22		11.8	275				2.0	(2.30)
23		(11.6)	<250				3.9	(2.50)

Time: 75.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 55

Little America (78.2°S, 162.2°W) October 1958									
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	---	(5.5)	340	---	111	----	2.5	(2.48)	
01	---	(5.5)	330	---	<116	(2.00)	2.3	2.50	
02	---	(5.0)	315	---	111	----	2.3	(2.58)	
03	---	(5.3)	320	---	109	(2.30)	2.5	(2.60)	
04	---	(5.6)	280	---	106	(2.42)		2.75	
05	---	(6.0)	(270)	(3.7)	107	2.48		2.70	
06	---	7.2	255	---	105	2.70		2.80	
07	---	8.2	250	---	107	2.80		2.70	
08	(405)	9.5	250	---	108	2.90		2.70	
09	(450)	(8.6)	250	4.2	107	3.00		2.70	
10	(520)	(8.45)	245	4.4	105	3.05		2.75	
11	---	8.45	250	4.3	105	3.10		(2.70)	
12	(595)	(8.5)	250	4.7	105	(3.10)		2.65	
13	(670)	8.5	250	4.5	105	(3.10)		2.68	
14	(415)	(8.5)	240	(4.6)	105	(3.00)		(2.55)	
15	(500)	(8.5)	240	4.4	107	2.90		(2.60)	
16	(510)	(8.3)	255	4.4	107	2.75	3.2	2.50	
17	(470)	(8.5)	260	(4.1)	107	(2.55)	3.0	(2.50)	
18	---	(8.5)	280	---	109	(2.38)		(2.50)	
19	---	(8.15)	290	---	111	(2.12)		(2.40)	
20	---	(7.8)	300	---	115	(2.10)		(2.45)	
21	---	(7.35)	305	---	115	(1.85)		(2.48)	
22	---	(6.3)	300	---	118	(1.90)	2.1	(2.35)	
23	---	(6.0)	310	---	111	(1.85)	2.4	(2.48)	

Time: 165.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 57

Chiclayo, Peru (6.8°S, 79.8°W) September 1958									
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	---	10.4	230	---	---	---	2.5	2.75	
01	---	9.4	240	---	---	---		2.75	
02	---	8.8	240	---	---	---		2.88	
03	---	8.2	240	---	---	---		2.90	
04	---	6.5	230	---	---	---		3.00	
05	---	5.2	240	---	---	---		3.00	
06	---	5.5	270	---	---	---		2.70	
07	---	9.3	260	---	<125	(2.70)		2.85	
08	---	12.0	240	---	<121	3.40		2.60	
09	---	13.2	230	---	117	3.92		2.42	
10	---	14.2	220	---	115	4.20		2.25	
11	---	14.15	220	---	115	(4.30)		2.10	
12	---	14.0	215	---	115	----		2.00	
13	---	>13.0	(210)	---	115	----		1.98	
14	---	>12.35	(210)	---	113	----		1.95	
15	---	12.1	(220)	---	115	(4.00)		1.95	
16	---	12.0	240	---	115	3.60		1.95	
17	---	11.65	260	---	119	3.05		(2.00)	
18	---	(11.45)	300	---	<150	2.20	2.3	(2.05)	
19	---	(10.3)	400	---	---	---		(2.05)	
20	---	(11.5)	400	---	---	---		(2.05)	
21	---	(11.55)	330	---	---	---		(2.25)	
22	---	(11.6)	250	---	---	---	2.6	(2.50)	
23	---	10.9	230	---	---	---	2.5	(2.65)	

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 59

Byrd Station (80.0°S, 120.0°W) September 1958									
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	---	(8.1)	340	---	---	---		(2.45)	
01	---	6.8	340	---	---	---	2.8	2.45	
02	---	6.85	360	---	---	---		2.50	
03	---	7.05	(340)	---	---	---		2.62	
04	---	6.65	<325	---	---	---		2.65	
05	---	6.9	280	---	---	---		2.82	
06	---	7.2	(265)	---	---	---		2.90	
07	---	7.7	250	---	---	---		2.95	
08	---	9.0	250	---	---	---		2.95	
09	---	9.8	245	---	---	---		3.00	
10	---	10.5	240	---	---	---		2.95	
11	---	10.9	245	---	---	---		2.95	
12	---	10.8	250	---	---	---		2.95	
13	---	11.0	245	---	---	---		2.95	
14	---	10.6	245	---	---	---		2.95	
15	---	10.0	(260)	---	119	2.52		3.00	
16	---	8.0	275	---	121	----		2.88	
17	---	7.0	280	---	---	---		2.85	
18	---	(7.4)	300	---	---	---	2.4	(2.72)	
19	---	(8.0)	310	---	---	---	2.8	(2.60)	
20	---	(8.3)	310	---	---	---	3.0	(2.55)	
21	---	(8.25)	330	---	---	---	3.0	(2.52)	
22	---	(8.3)	325	---	---	---		(2.55)	
23	---	(8.1)	340	---	---	---		(2.40)	

Time: 120.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 56

Pole Station (90.0°S) October 1958									
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	---	(7.35)	260	---	109	2.55		(2.55)	
01	---	7.65	265	---	111	(2.50)	2.9	2.55	
02	(510)	7.6	270	---	110	(2.45)		2.50	
03	(470)	7.6	270	(3.9)	111	2.60		2.45	
04	(460)	7.65	275	(3.9)	111	(2.38)		2.35	
05	460	(7.6)	275	4.0	109	(2.48)		(2.35)	
06	(470)	(6.95)	270	3.8	109	2.50		(2.25)	
07	440	(6.8)	270	(3.8)	110	(2.50)		(2.25)	
08	(455)	6.8	270	(3.8)	109	(2.55)		2.30	
09	540	(5.5)	275	3.8	109	2.80		2.25	
10	(525)	5.3	<300	(3.7)	109	(2.80)		2.25	
11	(550)	5.6	320	3.9	107	(2.80)		2.35	
12	---	6.05	290	---	109	2.85		2.60	
13	(720)	6.3	285	---	109	2.70		2.55	
14	---	6.6	275	---	109	2.60		2.60	
15	(450)	7.2	275	---	109	2.50		2.55	
16	(475)	7.8	265	---	111	2.50		2.55	
17	---	7.65	265	---	109	(2.40)		2.65	
18	---	6.5	270	---	109	2.50		2.65	
19	---	(6.8)	275	---	109	(2.50)		2.70	
20	---	(6.75)	270	---	110	(2.70)		(2.70)	
21	---	6.85	265	---	109	(2.60)		2.75	
22	---	7.0	260	---	109	(2.50)		2.70	
23	---	7.0	255	---	109	(2.60)		2.65	

Time: 0.0°.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 58

Wilkes Station (66.2°S, 110.5°E) September 1958									
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	---	(5.3)	245	---	---	---	2.0	(2.75)	
01	---	(5.15)	250	---	---	---	1.8	(2.75)	
02	---	(5.0)	255	---	---	---	1.4	2.75	
03	---	(5.75)	250	---	---	---	1.8	(2.70)	
04	---	(4.9)	255	---	---	---	1.8	(2.62)	
05	---	(6.0)	265	---	---	---	1.6	(2.75)	
06	---	6.0	260	---	(113)	----	2.0	2.75	
07	---	7.15	250	---	---	---		2.75	
08	(415)	(7.9)	245	(4.1)	115	(2.68)		2.70	
09	(425)	(8.25)	240	(4.1)	113	(2.62)		2.65	
10	(400)	(9.2)	(230)	---	110	(3.05)		2.60	
11	(405)	(9.7)	(235)	(4.5)	(109)	(3.20)		(2.50)	
12	(375)	(9.8)	(240)	4.8	111	3.25		(2.50)	
13	430	>9.25	(240)	(4.5)	111	3.10		(2.50)	
14	<380	(10.6)	240	---	113	(2.95)		(2.60)	
15	(410)	(9.0)	<250	---	<119	(2.60)		(2.60)	
16	(470)	(9.2)	(265)	---	115	(2.18)		(2.60)	
17	<360	(8.75)	280	---	109	(1.90)		2.55	
18	---	(8.2)	290	---	---	---		(2.62)	
19	---	(7.2)	<300	---	---	---		2.55	
20	---	(6.6)	<290	---	---	---		2.60	
21	---	(6.1)	260	---	---	---		2.52	
22	---	(6.2)	255	---	---	---		2.75	
23	---	(6.0)	250	---	---	---	2.3	(2.62)	

Time: 105.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 60

Pole Station (90.0°S)						September 1958		
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(6.8)	260		126	----		(2.70)
01		(7.3)	255		<127	1.85		(2.65)
02		7.9	<280		119	----		2.60
03		(7.8)	265		(139)	----		2.58
04		(8.2)	270		(127)	----		(2.48)
05		(7.6)	275		<131	----		(2.50)
06		(7.95)	280		<136	----		(2.45)
07	---	(8.4)	285	---	----	----		(2.45)
08		(8.15)	290		(119)	----		(2.40)
09		(7.2)	305		<125	----		(2.48)
10		6.45	275		121	----		2.52
11		6.15	305		<121	----		2.50
12		(6.2)	<290		109	----		(2.60)
13		5.65	290		115	----		2.70
14		6.7	285		119	(2.20)		2.75
15		(8.7)	270		121	----		(2.80)
16		(9.6)	270		----	----		(2.80)
17		8.5	260		117	----		2.85
18		6.8	280		(121)	----		2.70
19		(4.95)	275		(121)	(2.00)		(2.75)
20		(4.85)	290		<125	1.92		(2.70)
21		(5.2)	280		<131	(1.95)		(2.80)
22		(5.35)	<275		<141	(1.85)		(2.75)
23		5.5	275		<139	(1.90)		2.58

Table 61

Chiclayo, Peru (6,8°S, 79,8°W)

August 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		9.3	235					2.65
01		9.5	245					2.80
02		9.3	240					2.90
03		0.8	230					3.05
04		6.9	235					3.12
05		5.35	235					3.00
06		4.7	260					2.70
07		7.9	270		129	2.40		2.02
08		9.9	245		119	3.20		2.70
09		10.7	230		113	3.70		2.35
10		11.45	215		118	4.05		2.25
11	---	11.55	<215	---	115	4.20		2.10
12	---	11.8	210	(7.2)	110	(4.30)		2.05
13	---	11.8	210	(6.7)	115	4.30		2.02
14	---	11.5	<210	(6.5)	115	4.20		2.00
15	---	>11.1	220	(6.5)	113	3.95		2.00
16		10.9	225	---	117	3.58		1.90
17		>10.75	250	---	119	3.05		2.00
18		(10.35)	290		(145)	2.20	2.8	(2.05)
19		>9.55	385					2.00
20		>9.4	400					2.00
21		9.75	350					(2.15)
22		9.4	270					2.50
23		9.4	240					2.65

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 62

Wilkes Station (66.2°S, 110.5°E)

August 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(4.4)	255				1.9	(2.80)
01		(4.2)	<245				2.4	(2.90)
02		(4.2)	240				1.5	(2.95)
03		(4.4)	260				1.6	(2.90)
04		(3.9)	250				1.8	(2.90)
05		(3.8)	250				2.2	(2.85)
06		(4.8)	260				2.4	(2.75)
07		(6.8)	<245		---	----	1.7	(2.90)
08		(7.0)	240		113	(1.80)		(3.00)
09		(7.8)	240		(121)	2.05		(2.90)
10		(7.7)	240		(117)	(2.35)		(3.00)
11	---	(8.0)	240	---	(115)	(2.40)		2.88
12	---	(9.1)	<250	---	<121	(2.50)		(2.78)
13	(320)	(9.0)	250	---	121	2.40		2.70
14	---	(10.0)	250	---	(121)	(2.18)		(2.72)
15	---	(8.5)	270	---	113	(1.80)	2.1	(2.68)
16		(8.7)	265		---	----	2.2	(2.65)
17		(7.8)	275				2.4	(2.58)
18		(6.8)	280					(2.70)
19		(5.8)	290					(2.68)
20		(6.0)	(255)					(2.75)
21		(4.9)	260				3.4	(2.80)
22		(5.2)	265				2.6	(2.70)
23		(3.9)	(250)					(2.70)

Time: 105.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 63

Little America (78.2°S, 162.2°W)

August 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(6.0)	285				2.2	(2.68)
01		(4.9)	305		---	----	2.3	(2.65)
02		(5.0)	300		---	----	2.5	(2.60)
03		(4.6)	305		---	----	2.7	(2.80)
04		(4.65)	(300)		---	----	2.9	(2.85)
05		(4.4)	300		---	----	3.0	(2.90)
06		(4.05)	285		---	----	2.8	(2.88)
07		(5.0)	290		---	----	2.4	(2.95)
08		(6.35)	270		---	----	2.0	3.00
09		(5.0)	300		---	----	2.3	(2.82)
10		(4.6)	290		---	----	2.3	(2.90)
11		(4.95)	295		---	----	2.2	(3.00)
12		(4.95)	310		<119	2.08		(2.85)
13		(5.8)	270		---	----	2.5	(2.85)
14		(6.5)	(260)		---	----	2.5	(2.75)
15		(7.0)	255		---	----	3.5	(2.75)
16		(7.5)	250		---	----	3.0	(2.82)
17		(7.8)	250				3.0	(2.78)
18		(8.5)	250				2.3	(2.72)
19		(8.2)	250				2.0	(2.70)
20		(7.35)	250					(2.70)
21		(7.0)	255					2.60
22		(7.0)	260					(2.50)
23		(5.5)	285				1.5	(2.60)

Time: 165.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 64

Byrd Station (80.0°S, 120.0°W)

August 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(6.1)	330				3.0	(2.58)
01		(6.35)	340				3.2	(2.50)
02		(6.45)	(360)				3.2	(2.50)
03		6.0	<330				3.0	2.55
04		6.2	300					2.65
05		5.0	280					2.70
06		4.2	(300)					2.70
07		4.45	<300					2.80
08		5.5	270					2.95
09		5.8	255					2.95
10		6.65	245					3.05
11		7.3	245					3.00
12		6.45	240					3.05
13		(6.5)	255					(3.00)
14		(6.2)	265					(2.95)
15		(4.5)	300					(2.70)
16		(4.0)	<355				2.6	(2.60)
17		(4.5)	345				2.8	(2.62)
18		(4.9)	(340)				3.5	(2.58)
19		(6.3)	340				4.4	(2.65)
20		(6.5)	325				5.2	(2.60)
21		(6.5)	320				4.0	(2.65)
22		(7.0)	320				3.1	(2.60)
23		(6.6)	335				3.3	(2.50)

Time: 120.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 65

Wilkes Station (66.2°S, 110.5°E)

July 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(3.3)	240					(3.05)
01		(3.9)	245					----
02		(3.5)	240					(3.05)
03		3.2	240				2.3	(2.85)
04		(3.1)	250				2.2	(2.80)
05		(4.3)	250					(2.92)
06		(3.65)	250				1.8	(2.80)
07		(4.0)	240				2.0	(2.90)
08		(4.25)	245				2.2	(2.90)
09		(4.8)	250		(121)	(1.65)		(2.95)
10	---	(6.8)	260		(114)	(1.95)		2.78
11	---	(6.8)	265		(127)	(2.15)		(2.80)
12	---	(7.4)	270		---	----		(2.80)
13	---	(7.7)	260		---	----		(2.70)
14	---	(6.9)	260		(119)	----		(2.80)
15	---	(6.75)	280		121	----		(2.65)
16		(5.7)	280					(2.38)
17		(6.0)	290					(2.55)
18		(5.5)	300					(2.72)
19		(5.5)	300					(2.65)
20		(4.05)	265				1.6	(2.82)
21		(4.6)	270					(2.70)
22		(3.6)	260				2.8	(2.98)
23		(4.9)	250				1.8	----

Time: 105.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 66

Little America (78.2°S, 162.2°W)

July 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(3.85)	290		---	----	2.4	(2.68)
01		(3.8)	280				2.4	(2.80)
02		(3.7)	305				2.8	(2.55)
03		(4.0)	295				2.6	(2.80)
04		(4.0)	(260)				3.5	----
05		---	(260)		---	----	4.0	----
06		(3.0)	(275)				2.4	(3.10)
07		(3.1)	290				3.0	(2.80)
08		(3.45)	300				2.8	(2.85)
09		(3.05)	310		---	----	2.3	(2.75)
10		(3.5)	330				2.4	(2.70)
11		>3.5	(300)				2.5	(2.70)
12		(4.5)	(270)		---	----	2.4	(2.75)
13		(3.9)	(260)		---	----	2.5	(2.70)
14		(4.4)	250		---	----	2.5	(2.75)
15		(4.85)	240		---	----	2.9	(2.65)
16		(5.5)	250				2.6	(2.70)
17		(6.35)	260				2.5	(2.80)
18		(5.85)	260				2.8	(2.70)
19		(6.35)	250				1.8	(2.65)
20		(6.3)	265				2.6	(2.75)
21		(5.6)	270				4.0	(2.80)
22		(5.1)	(280)				2.6	(2.70)
23		(5.0)	(285)				2.5	(2.75)

Time: 165.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 67

Little America (78.2°S, 162.2°W)								June 1958
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(5.2)	300				2.2	(2.60)
01		(5.0)	300				2.4	(2.80)
02		(4.9)	300				3.0	(2.85)
03		(4.3)	290				2.8	(2.80)
04		(4.3)	280				2.8	(2.90)
05		(4.3)	295				2.6	(3.00)
06		(4.0)	300				2.3	(2.90)
07		(3.85)	325				2.4	(2.80)
08		(3.8)	315				2.5	(2.82)
09		(3.35)	300				2.4	(2.85)
10		(3.9)	<300				2.4	(2.80)
11		(4.0)	(330)				2.4	(2.68)
12		(4.1)	300				2.4	(2.75)
13		(4.7)	260				2.5	(2.82)
14		(4.5)	280				3.0	(2.80)
15		(5.0)	255				3.5	(2.65)
16		(5.5)	260				6.4	(2.75)
17		(6.0)	260				5.1	(2.75)
18		(6.4)	260				2.2	(2.65)
19		(6.5)	250				2.2	(2.80)
20		(5.8)	240				2.4	(2.62)
21		(5.0)	280				2.0	(2.50)
22		(5.5)	285				1.6	(2.65)
23		(5.0)	310				2.4	(2.60)

Time: 165.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 69

Little America (78.2°S, 162.2°W)								May 1958
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(4.95)	295				2.3	(2.50)
01		(5.3)	300				2.4	(2.50)
02		(5.25)	300				2.7	(2.50)
03		(5.15)	290				3.0	(2.60)
04		(5.4)	280				3.3	(2.65)
05		(4.9)	290				3.0	(2.75)
06		(4.25)	290				2.6	(2.75)
07		(5.0)	290				2.6	(2.78)
08		(5.35)	280				2.8	2.90
09		(4.0)	290				2.5	2.70
10		(4.0)	330				2.6	(2.70)
11		(4.2)	(255)				2.6	(2.82)
12		(4.8)	240		121		2.6	(2.85)
13		(4.5)	<240		(118)	(2.20)	2.6	(2.80)
14		(5.9)	250		<135		3.6	(2.82)
15		(5.8)	270				3.3	(2.75)
16		(7.55)	250				4.7	(2.70)
17		(8.0)	250				3.9	(2.65)
18		(7.3)	245				3.1	(2.75)
19		(9.5)	250				2.3	(2.70)
20		(8.0)	250				1.6	(2.50)
21		7.6	250				1.4	(2.55)
22		(5.8)	285				1.2	(2.60)
23		(4.8)	265				2.2	----

Time: 165.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 71\*

Terre Adelie (66.8°S, 141.4°E)								August 1956
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	---	5.8	250	----	110	(1.80)	2.3	(3.10)
01	---	(6.0)	250	----	---	(2.20)	2.6	(2.90)
02	(290)	(6.5)	<250	----	---	(2.40)	2.6	(2.70)
03	(360)	(7.2)	240	(3.70)	130	(2.40)	2.6	(2.85)
04	(320)	(7.9)	250	----	130	(2.30)	2.6	(2.60)
05	---	(7.0)	240	----	---	(2.10)	2.5	(2.85)
06	---	(7.1)	250	----	140	(2.00)	2.2	(2.70)
07	---	(7.0)	250	----	---	1.70	2.3	(2.80)
08	---	6.9	250	----	---	---	2.9	(2.75)
09	---	7.1	250	----	---	---	2.4	(2.65)
10	---	5.9	250	----	---	---	2.4	(2.70)
11	---	(6.0)	250	----	---	---	2.2	(2.80)
12	---	5.5	250	----	---	---	3.2	(2.90)
13								
14								
15								
16								
17								
18								
19								
20								
21								
22		(4.8)	255	----	---	---	2.2	(2.90)
23	---	(3.5)	250	----	---	(1.60)	2.2	----

Time: 0.0°.

Sweep: 1.3 Mc to 17.0 Mc in 1 minute.

\*Observations taken on a 15-hour working schedule.

Table 68

Byrd Station (80.0°S, 120.0°W)								June 1958
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(6.2)	315				3.3	(2.62)
01		(6.2)	365				3.6	(2.45)
02		(6.0)	(350)				3.7	(2.50)
03		(5.95)	360				4.0	(2.55)
04		(5.65)	310				3.0	(2.65)
05		(5.3)	295				3.0	(2.75)
06		4.15	280				2.6	2.80
07		3.5	290					2.85
08		(3.0)	<300					2.95
09		(3.0)	(300)					(2.85)
10		3.1	300					2.90
11		3.3	310					2.80
12		3.5	300					2.80
13		3.4	300				2.6	2.75
14		(3.2)	(330)				2.9	(2.60)
15		(3.2)	350				3.2	(2.60)
16		(3.5)	<360				3.4	(2.60)
17		(4.0)	(340)				4.0	(2.55)
18		(4.1)	<330				4.6	(2.70)
19		(4.75)	325				4.6	(2.55)
20		(5.85)	300				4.4	(2.60)
21		(6.05)	305				5.7	(2.62)
22		(6.2)	310				4.0	(2.60)
23		(5.95)	320				3.6	(2.60)

Time: 120.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 70

Concepcion, Chile (36.6°S, 73.0°W)								October 1957*
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(12.0)	(330)				(2.6)	(2.60)
01		(11.6)	<290				(2.0)	(2.68)
02		(10.0)	(280)				(2.3)	(2.60)
03		(8.7)	(280)					(2.40)
04		(8.25)	(310)					(2.2)
05		>9.2	(280)		115	2.02	(2.3)	(2.40)
06		(11.1)	(240)		116	2.90	(3.4)	(2.60)
07		(12.4)	<240		115	3.50	(3.7)	(2.65)
08		12.8	235		111	3.85	4.0	2.60
09		13.2	<235		111	4.10		2.50
10		13.75	235		111	----	4.7	2.45
11	445	13.6	(235)	----	111	----	4.6	2.45
12	455	13.35	230	----	111	----	4.6	2.40
13	455	13.4	<235	6.9	111	----		2.35
14	460	13.2	240	----	111	4.20		2.40
15	450	13.3	<245		111	3.92	4.3	2.40
16	---	13.1	250		111	3.50	3.9	2.40
17	---	13.0	265		119	2.82	3.0	2.45
18		12.4	(305)		---	----	3.7	2.48
19		11.4	350				(5.0)	2.35
20		11.6	395				3.2	2.25
21		11.8	370				3.6	(2.35)
22		11.65	355				(3.4)	(2.45)
23		11.6	340				2.8	(2.50)

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

\*Data reported October 16 through 31 only.

Table 72\*

Terre Adelie (66.8°S, 141.4°E)								July 1956
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	---	(3.5)	250	----	---	(1.60)	2.9	----
01	---	(3.8)	250	----	---	1.70	2.2	----
02	---	5.2	<250	----	105	1.85	2.4	(3.00)
03	---	(5.6)	240	----	<115	1.85	2.0	----
04	---	(6.0)	250	----	(110)	1.90	1.9	----
05	---	(5.7)	250	----	<175	(1.70)	2.2	----
06	---	(5.5)	245	----	---	1.60	3.3	----
07	---	4.9	250	----	---	---	2.5	(2.80)
08	---	5.0	250	----	---	---	3.2	(2.70)
09	---	(4.7)	250	----	---	---	2.0	(2.90)
10	---	(4.8)	250	----	---	---	2.3	(2.65)
11	---	(4.4)	250	----	---	---	2.3	(2.90)
12	---	(4.6)	<250	----	---	---	1.8	----
13								
14								
15								
16								
17								
18								
19								
20								
21								
22	---	---	(260)	----	---	---	2.9	----
23	---	(4.5)	250	----	---	---	3.4	----

Time: 0.0°.

Sweep: 1.3 Mc to 17.0 Mc in 1 minute.

\*Observations taken on a 15-hour working schedule.

USCOMM - NBS - BL



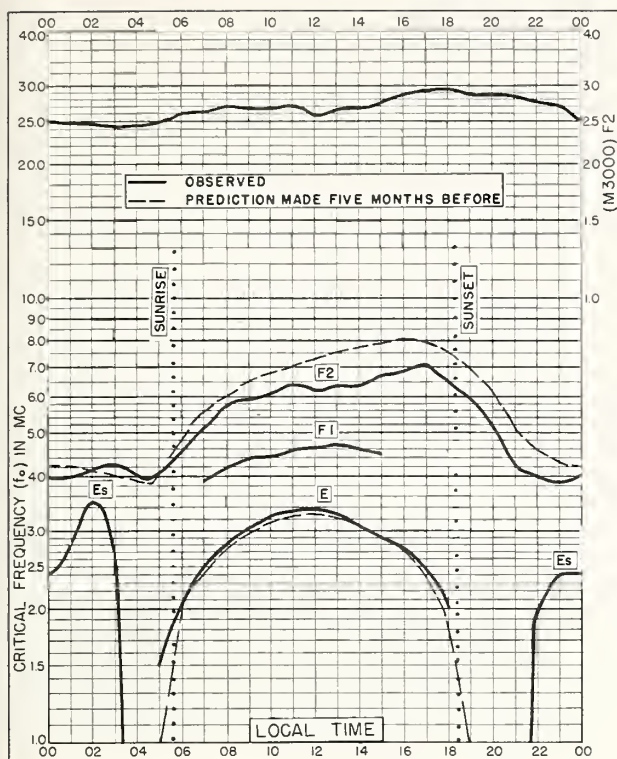


Fig. 1. ANCHORAGE, ALASKA  
61.2°N, 149.9°W SEPTEMBER 1959

Commerce-Standard-Industries, Inc.

NBS 503

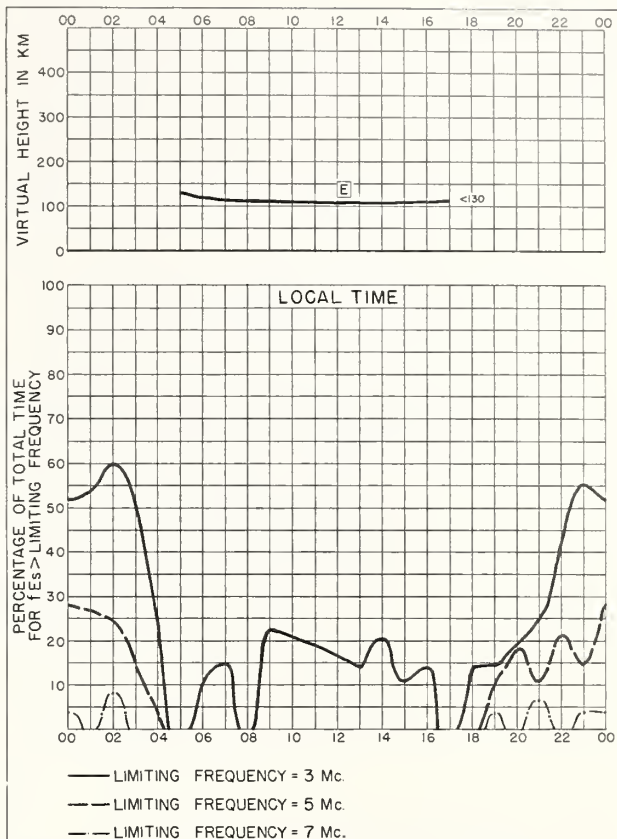


Fig. 2. ANCHORAGE, ALASKA SEPTEMBER 1959

Commerce-Standard-Industries, Inc.

NBS 490

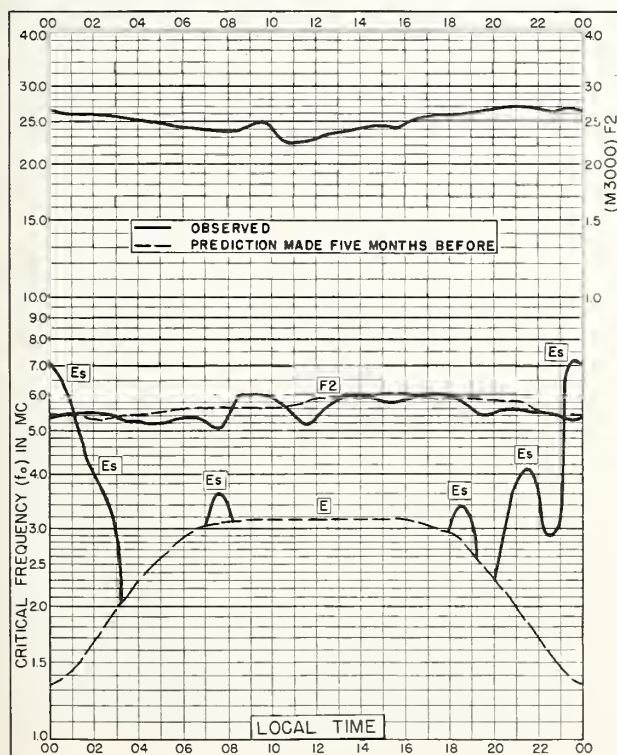


Fig. 3. POINT BARROW, ALASKA  
71.3°N, 156.8°W JULY 1959

Commerce-Standard-Industries, Inc.

NBS 503

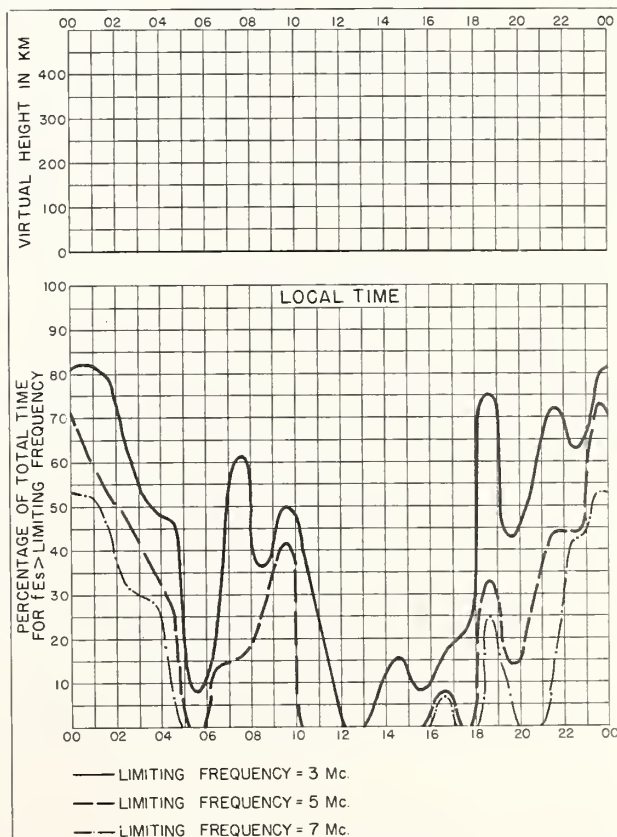


Fig. 4. POINT BARROW, ALASKA JULY 1959

Commerce-Standard-Industries, Inc.

NBS 490

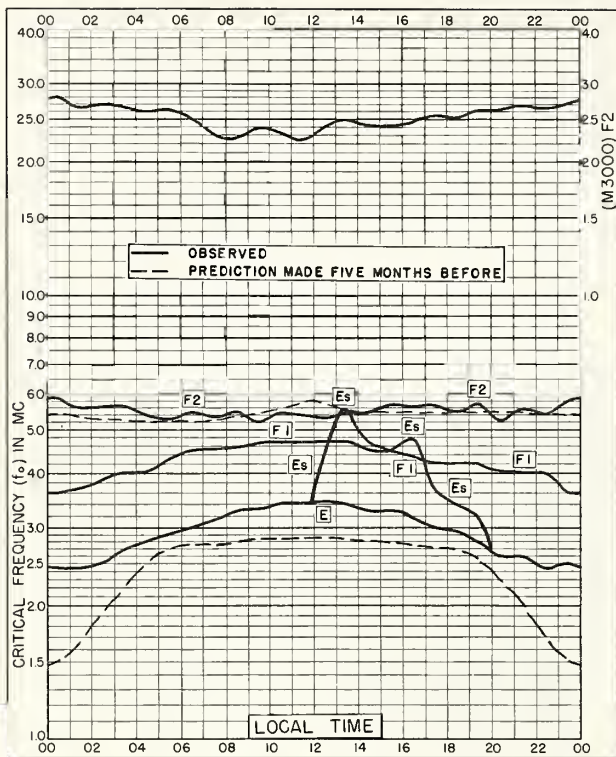


Fig. 5. THULE, GREENLAND  
76.6°N, 68.7°W

JUNE 1959

NBS 505

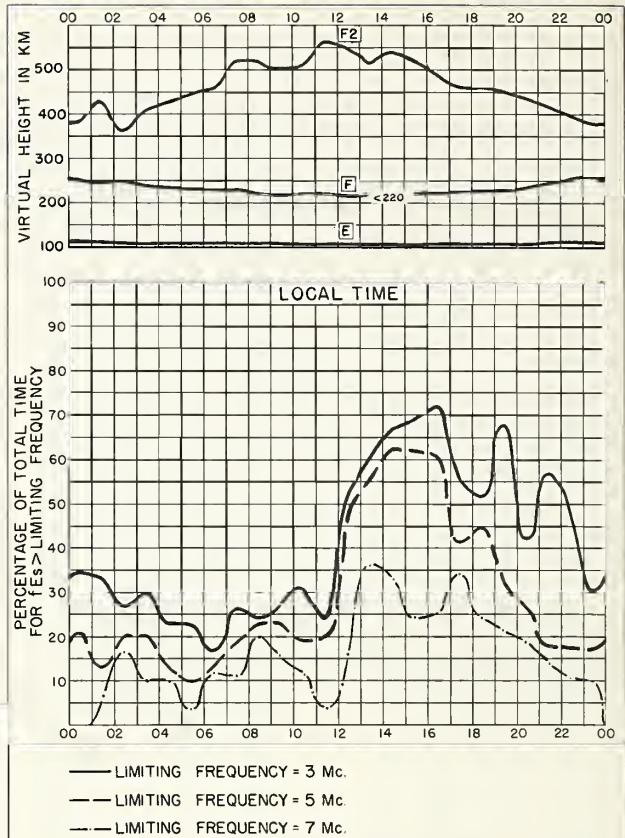


Fig. 6. THULE, GREENLAND

JUNE 1959

NBS 490

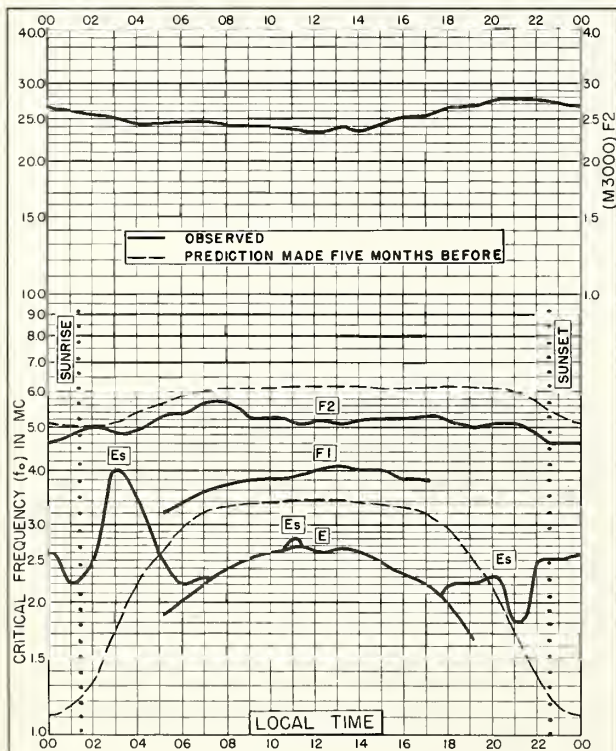


Fig. 7. FAIRBANKS, ALASKA  
64.9°N, 147.8°W

JUNE 1959

NBS 503

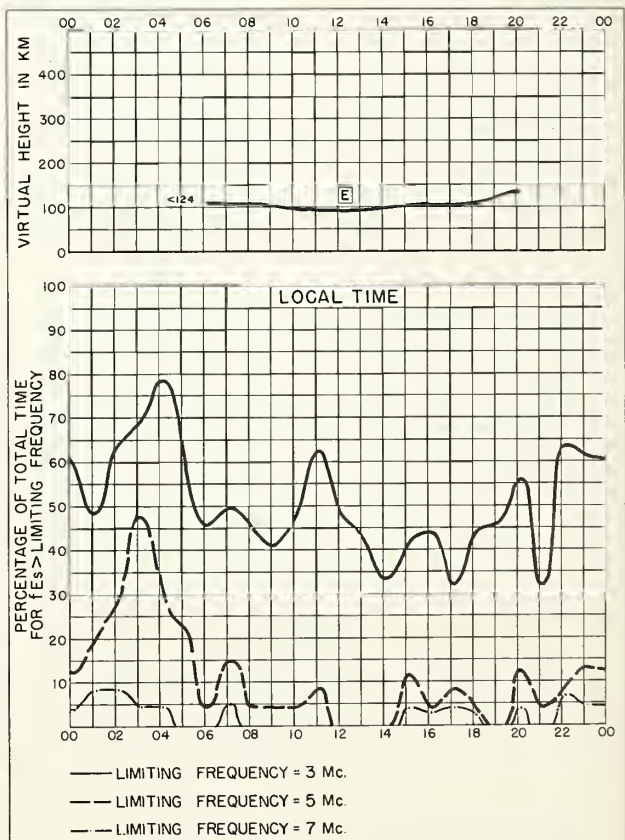


Fig. 8. FAIRBANKS, ALASKA

JUNE 1959

NBS 490



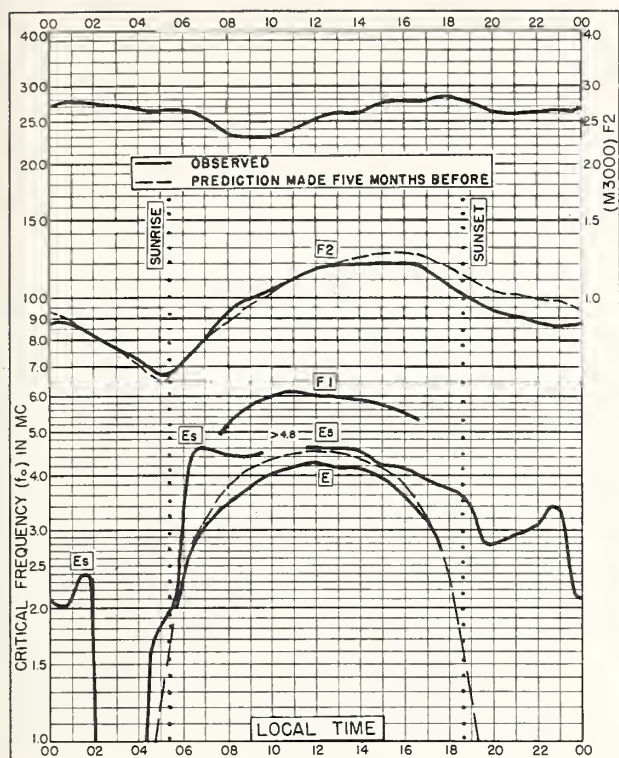


Fig. 9. MAUI, HAWAII  
20.8°N, 156.5°W  
JUNE 1959

Comstock-Balmain-Boulder, Colo.

NBS 503

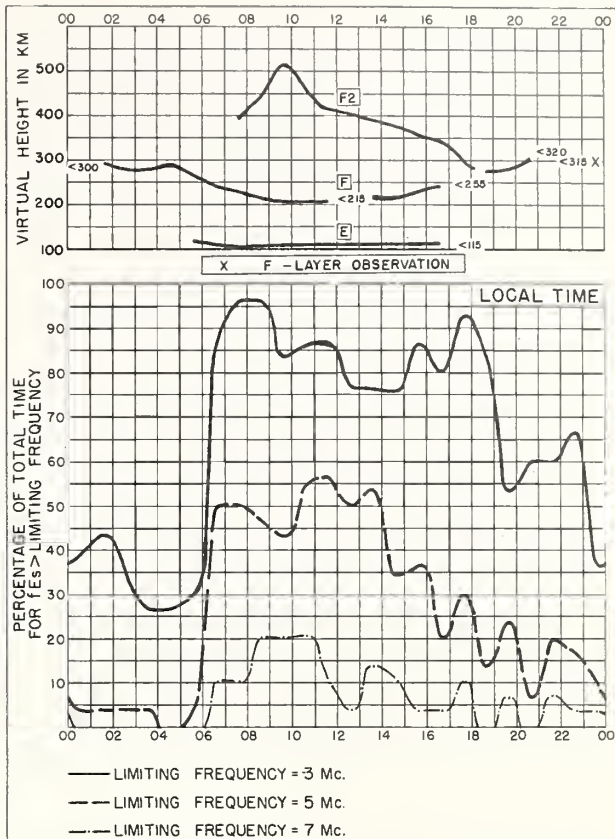


Fig. 10. MAUI, HAWAII  
JUNE 1959

Comstock-Balmain-Boulder, Colo.

NBS 490

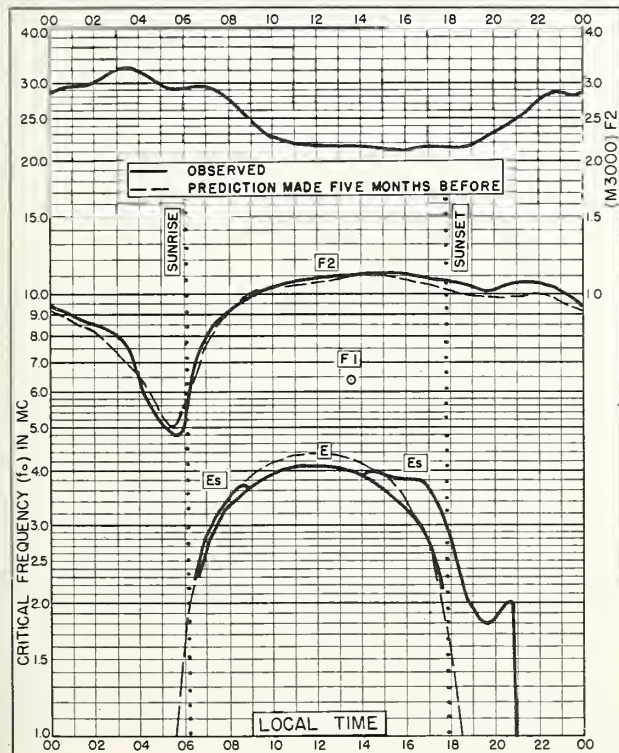


Fig. 11. TALARA, PERU  
4.6°S, 81.3°W  
JUNE 1959

Comstock-Balmain-Boulder, Colo.

NBS 503

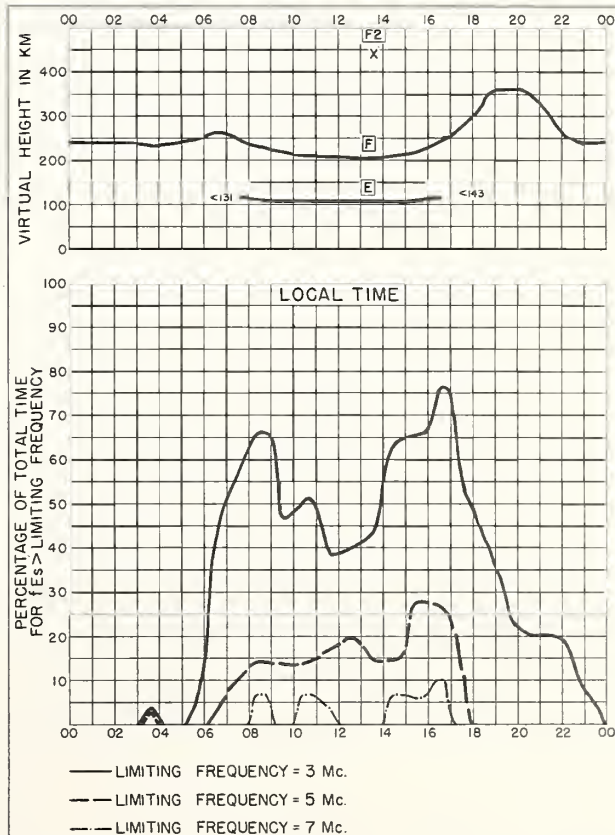


Fig. 12. TALARA, PERU  
JUNE 1959

Comstock-Balmain-Boulder, Colo.

NBS 490

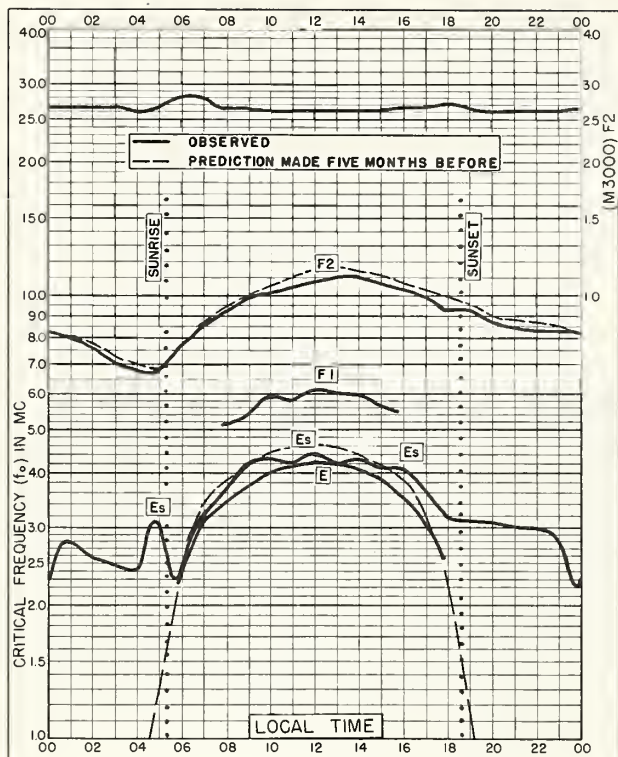


Fig. 13. GRAND BAHAMA I.  
26.6°N, 78.2°W

MAY 1959

NBS 503

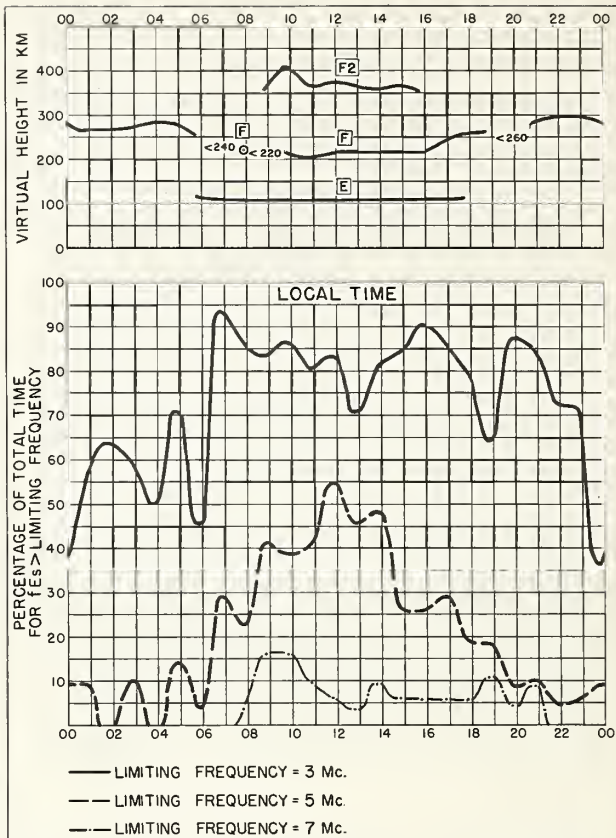


Fig. 14. GRAND BAHAMA I.

MAY 1959

NBS 490

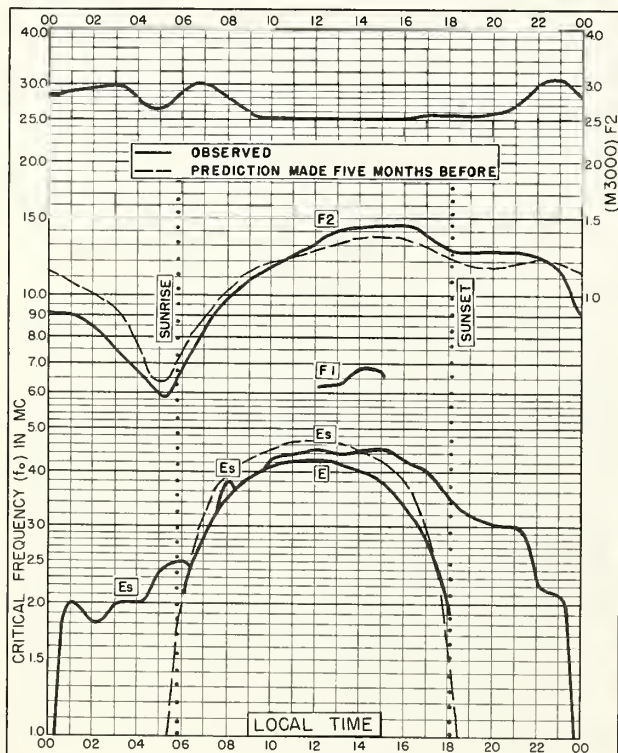


Fig. 15. BOGOTA, COLOMBIA  
4.5°N, 74.2°W

MAY 1959

NBS 503

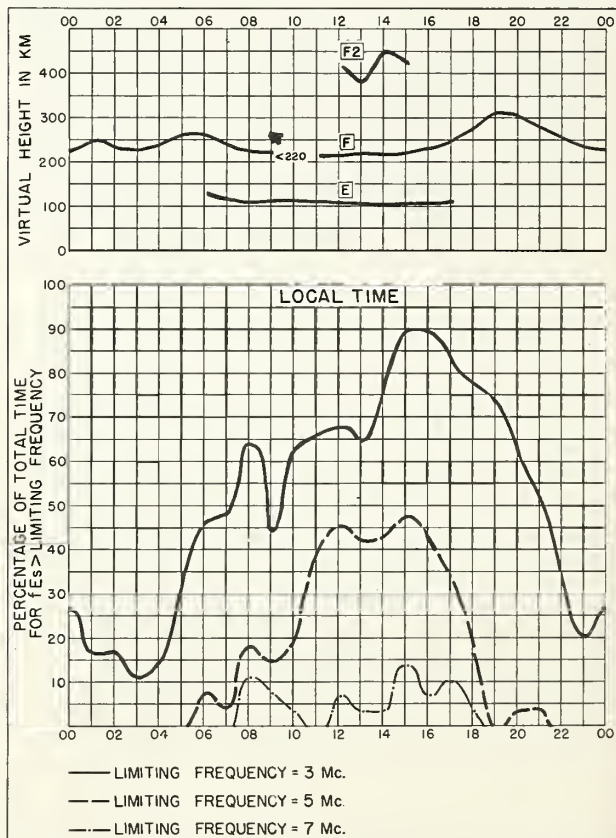


Fig. 16. BOGOTA, COLOMBIA

MAY 1959

NBS 490



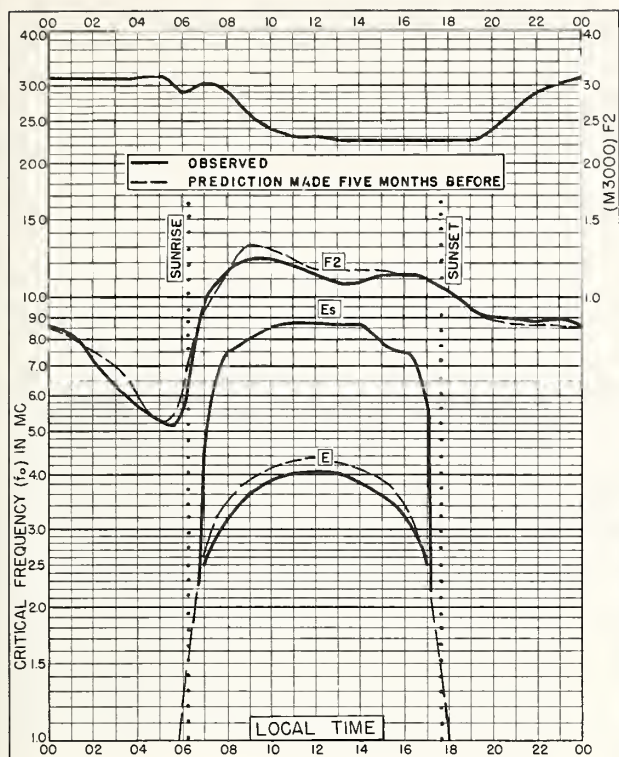


Fig. 17. HUANCAYO, PERU  
12.0°S, 75.3°W

MAY 1959

Compañía S.A. de Radios, C.A.

NBS 503

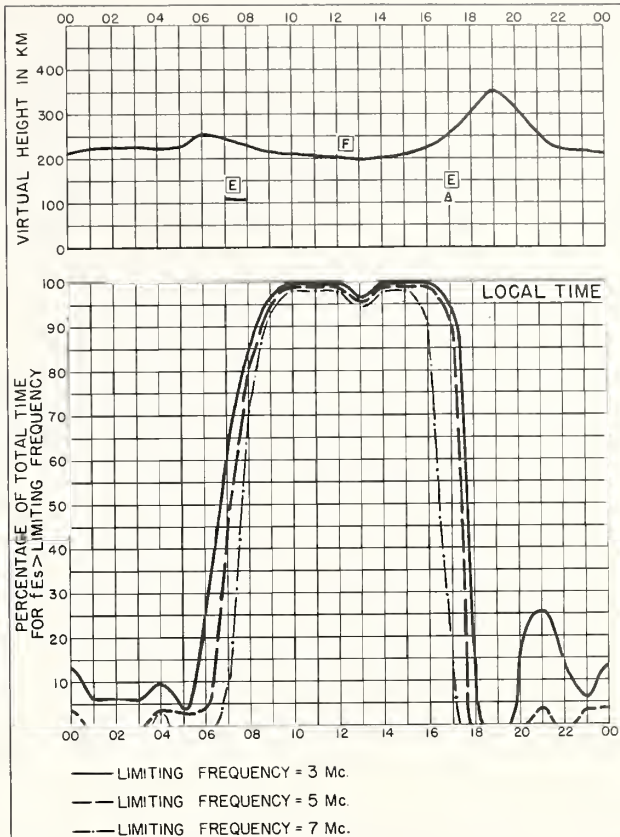


Fig. 18. HUANCAYO, PERU

MAY 1959

Compañía S.A. de Radios, C.A.

NBS 490

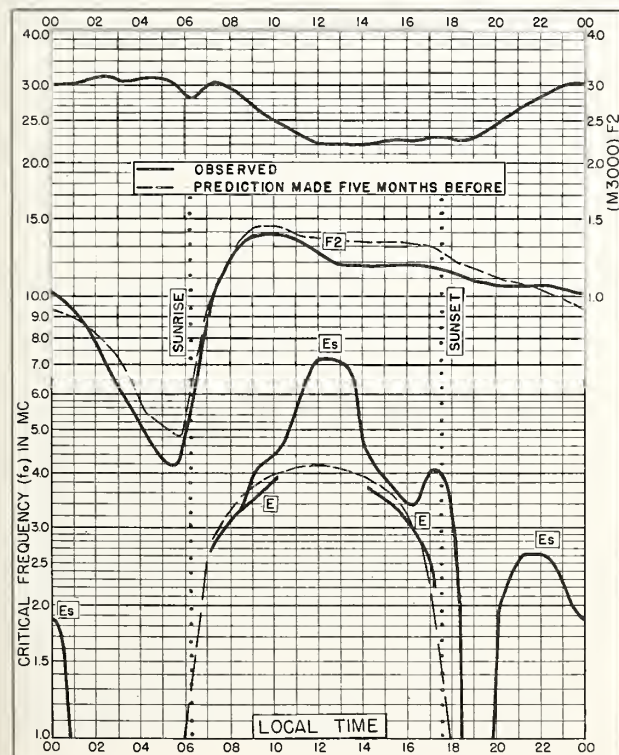


Fig. 19. ILO, PERU  
17.4°S, 71.2°W

MAY 1959

Compañía S.A. de Radios, C.A.

NBS 503

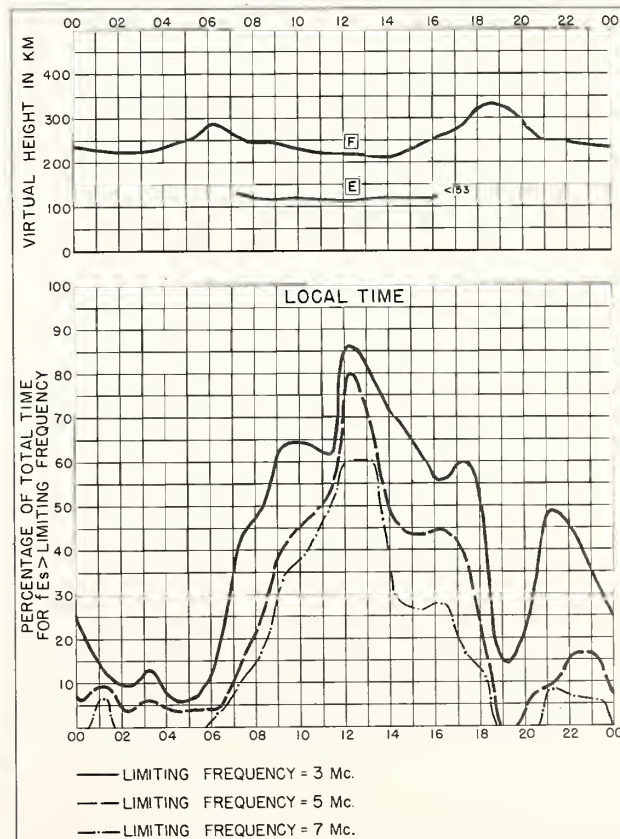


Fig. 20. ILO, PERU

MAY 1959

Compañía S.A. de Radios, C.A.

NBS 490

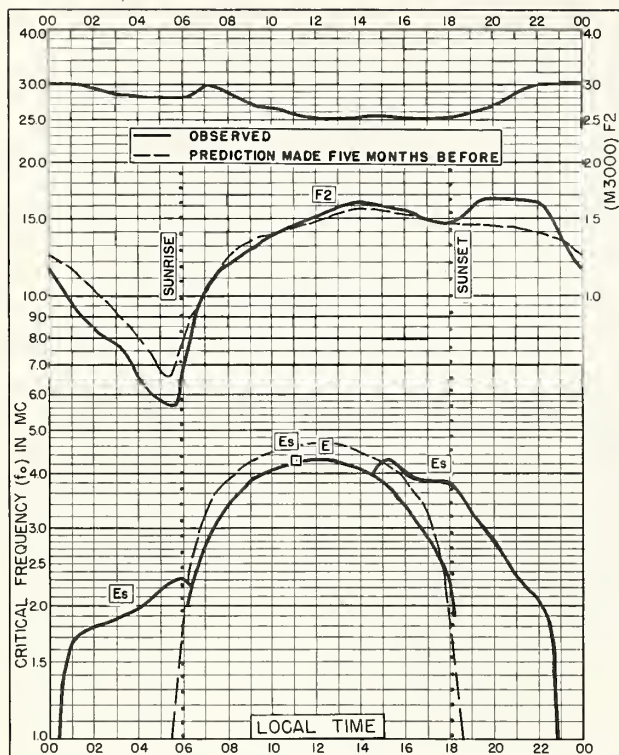


Fig. 21. BOGOTA, COLOMBIA  
4.5°N, 74.2°W

APRIL 1959

NBS 503

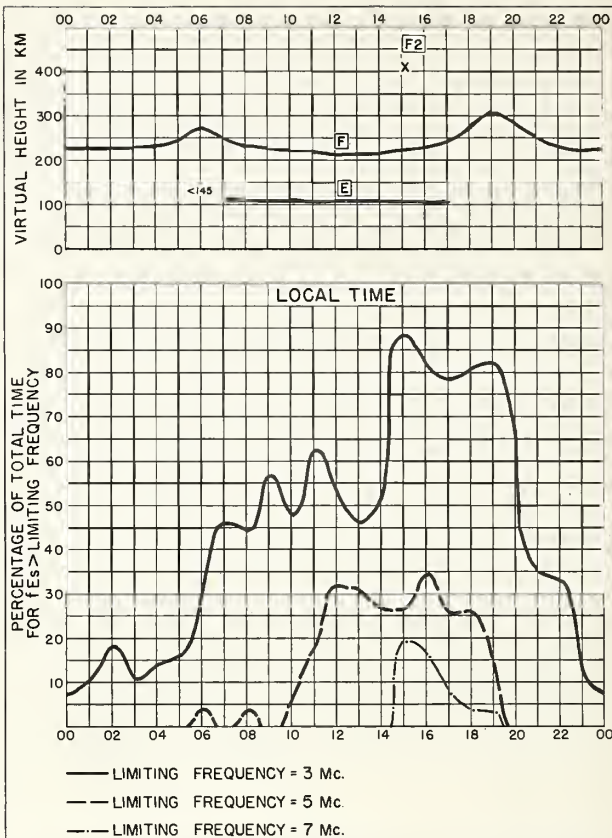


Fig. 22. BOGOTA, COLOMBIA

APRIL 1959

NBS 490

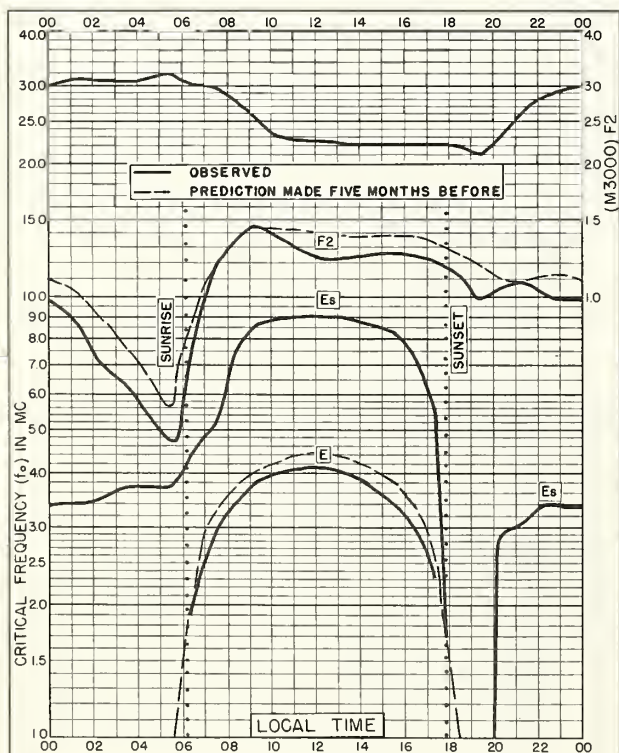


Fig. 23. JULIACA, PERU  
15.5°S, 70.2°W

APRIL 1959

NBS 503

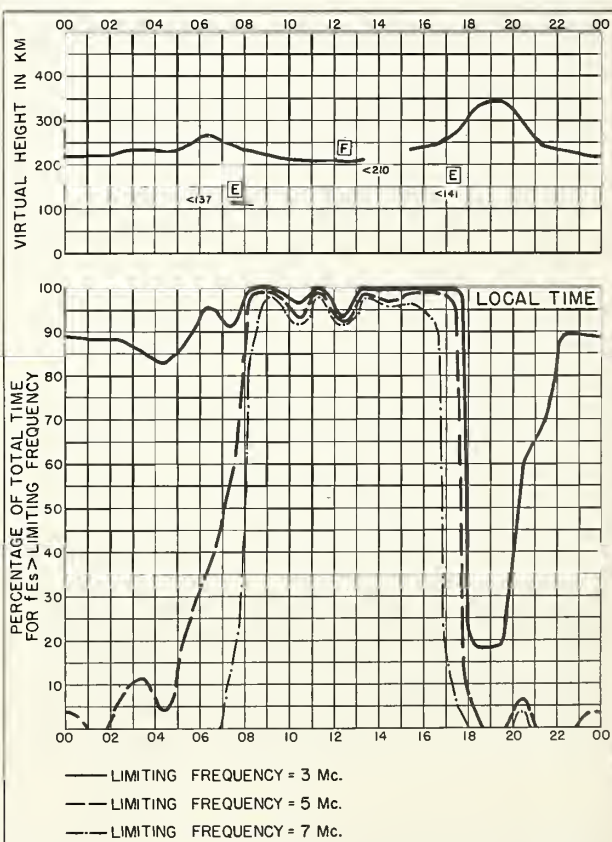


Fig. 24. JULIACA, PERU

APRIL 1959

NBS 490

NBS 490



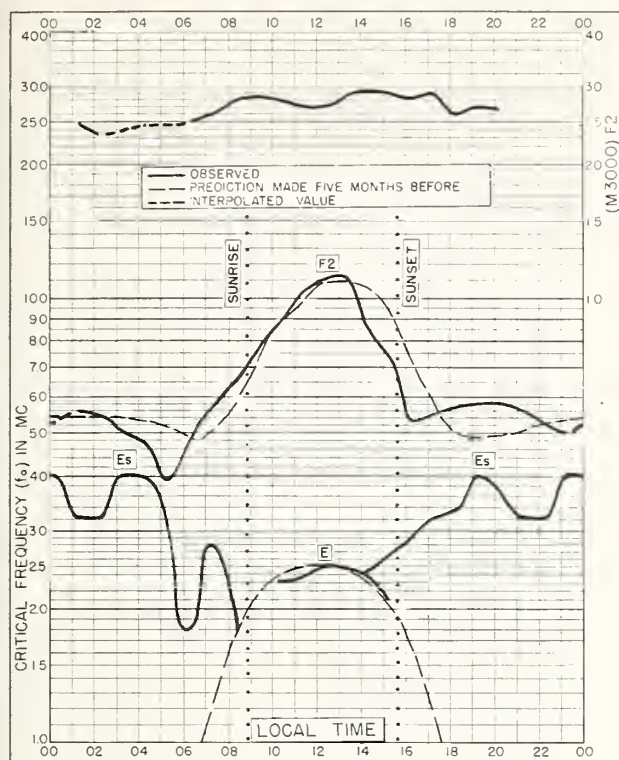


Fig. 25. TROMSØ, NORWAY  
69.7°N, 19.0°E FEBRUARY 1959

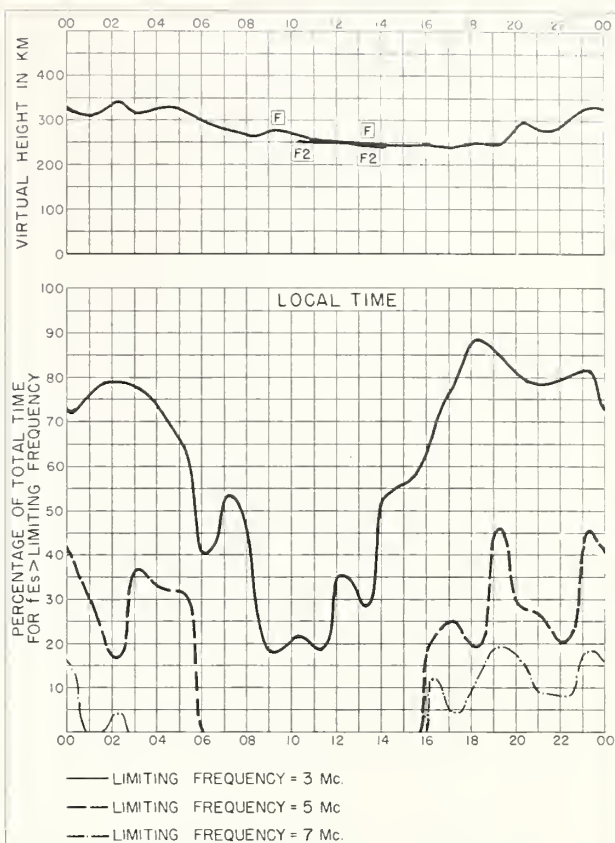


Fig. 26. TROMSØ, NORWAY FEBRUARY 1959

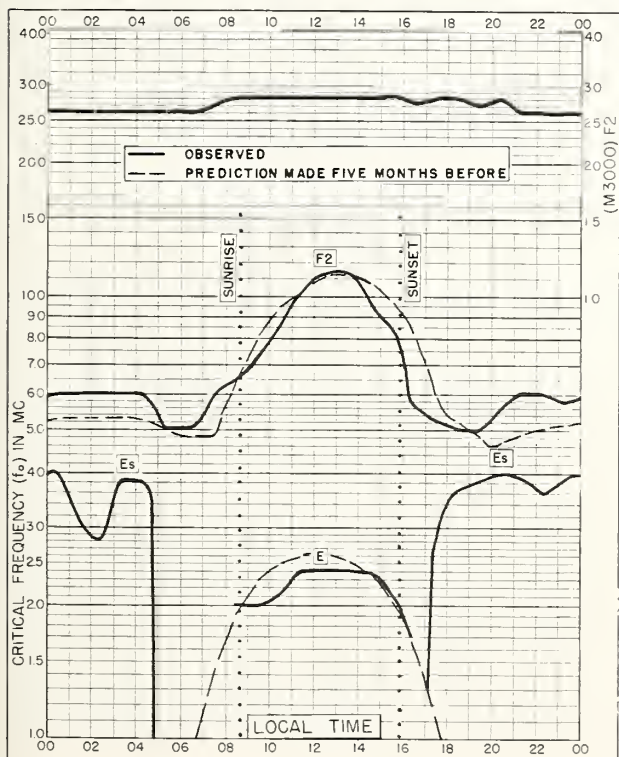


Fig. 27. KIRUNA, SWEDEN  
67.8°N, 20.3°E FEBRUARY 1959

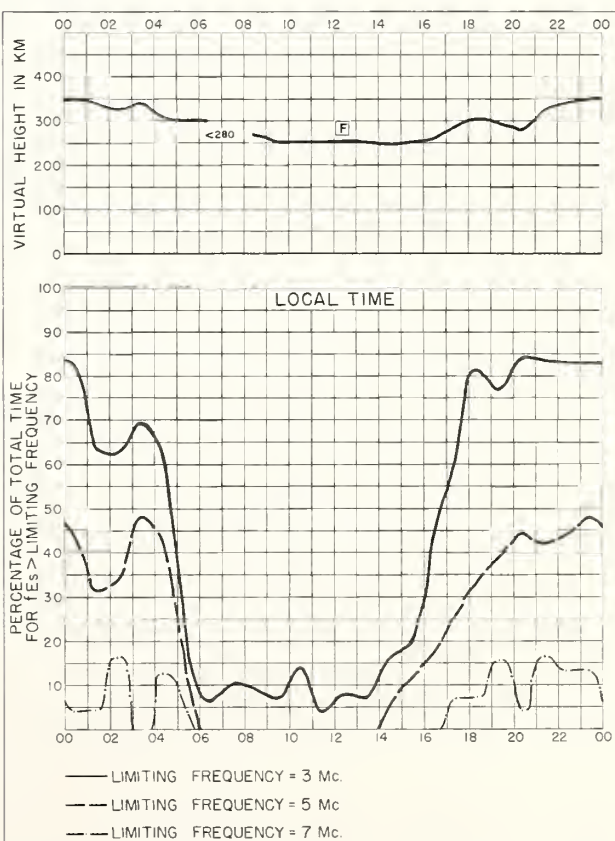


Fig. 28. KIRUNA, SWEDEN FEBRUARY 1959

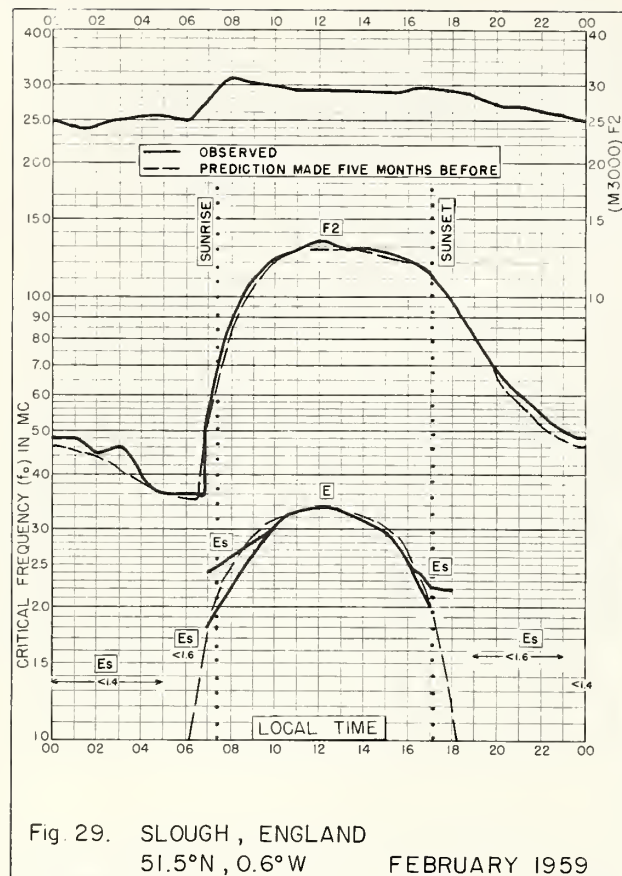


Fig. 29. SLOUGH, ENGLAND  
51.5°N, 0.6°W

FEBRUARY 1959

NBS 503

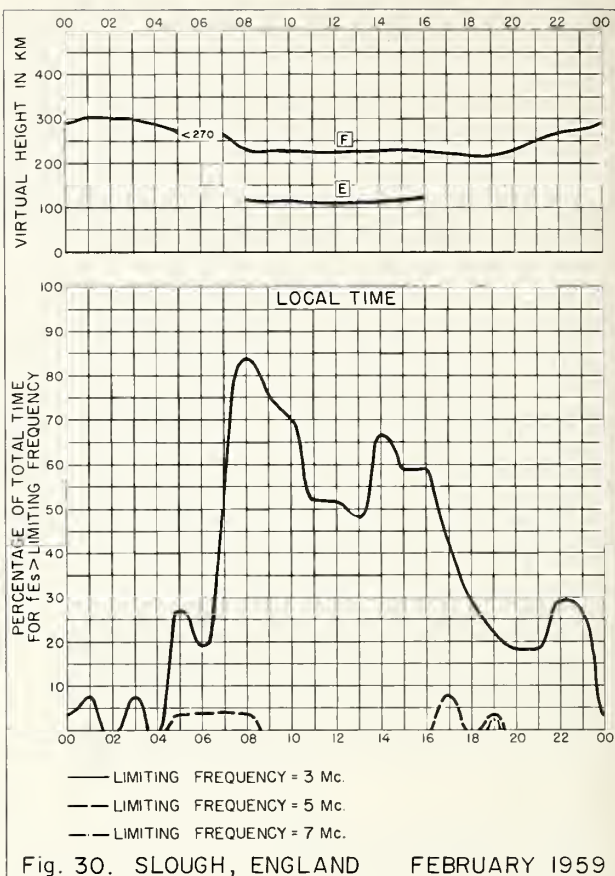


Fig. 30. SLOUGH, ENGLAND

FEBRUARY 1959

NBS 490

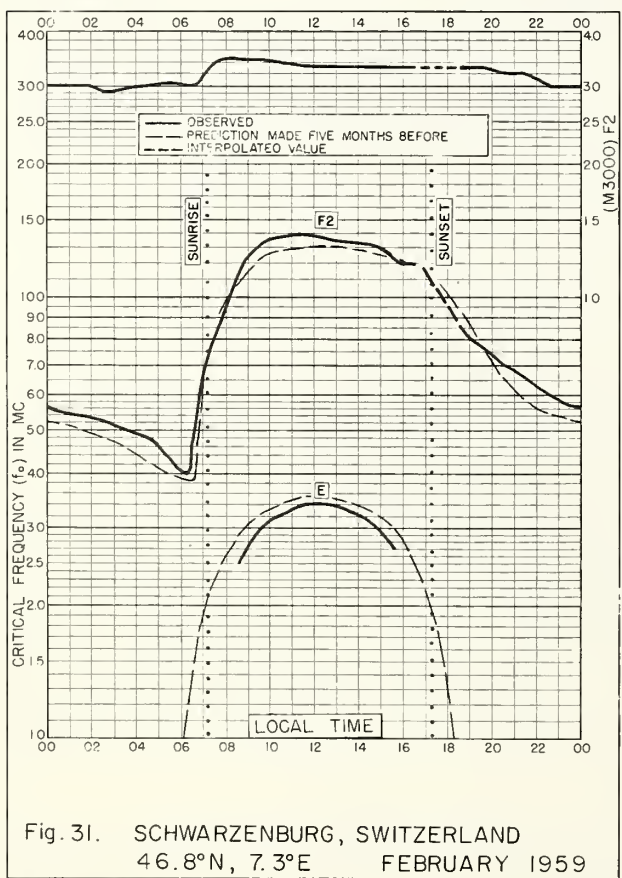


Fig. 31. SCHWARZENBURG, SWITZERLAND  
46.8°N, 7.3°E

FEBRUARY 1959

NBS 503

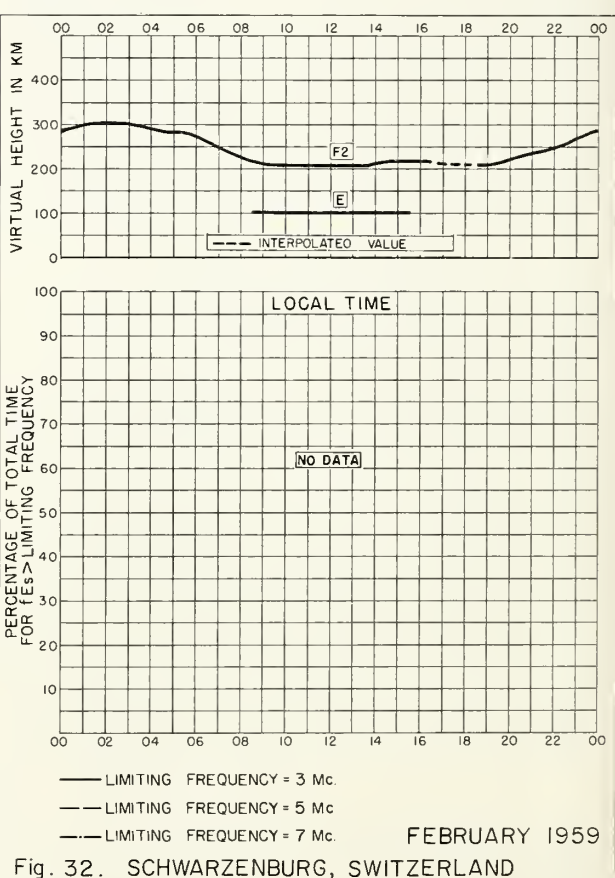


Fig. 32. SCHWARZENBURG, SWITZERLAND

NBS 490



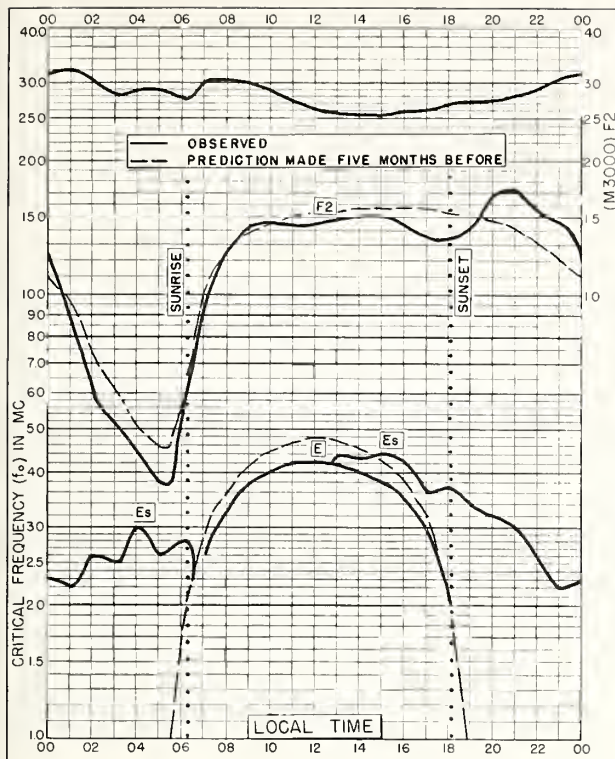


Fig. 33. BOGOTA, COLOMBIA  
4.5°N, 74.2°W  
FEBRUARY 1959

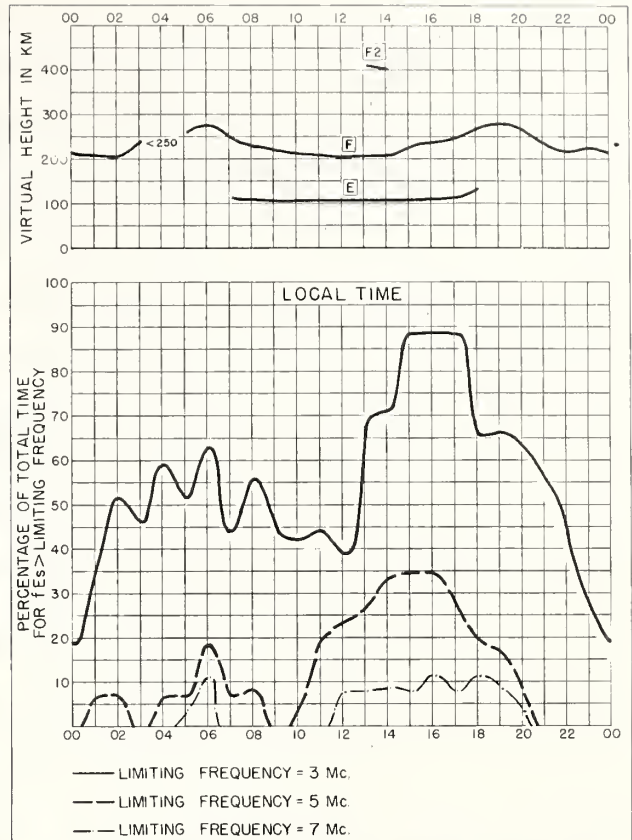


Fig. 34. BOGOTA, COLOMBIA  
FEBRUARY 1959

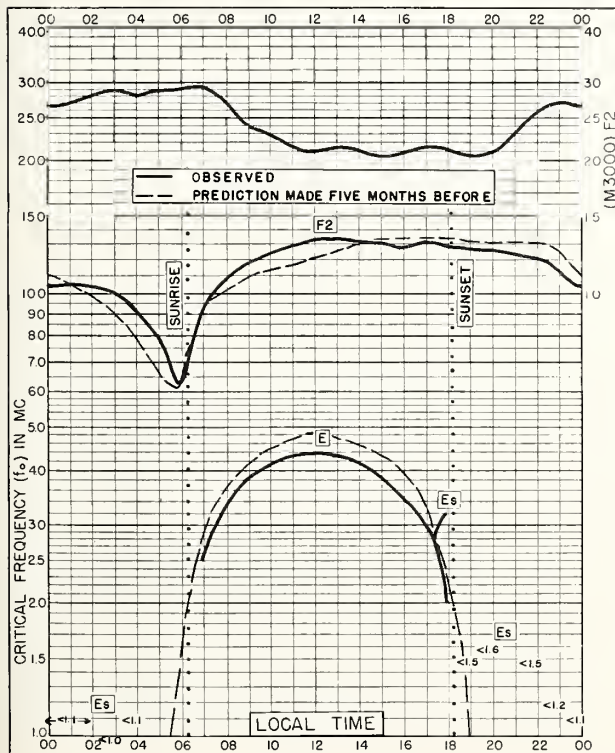


Fig. 35. SINGAPORE, BRITISH MALAYA  
1.3°N, 103.8°E  
FEBRUARY 1959

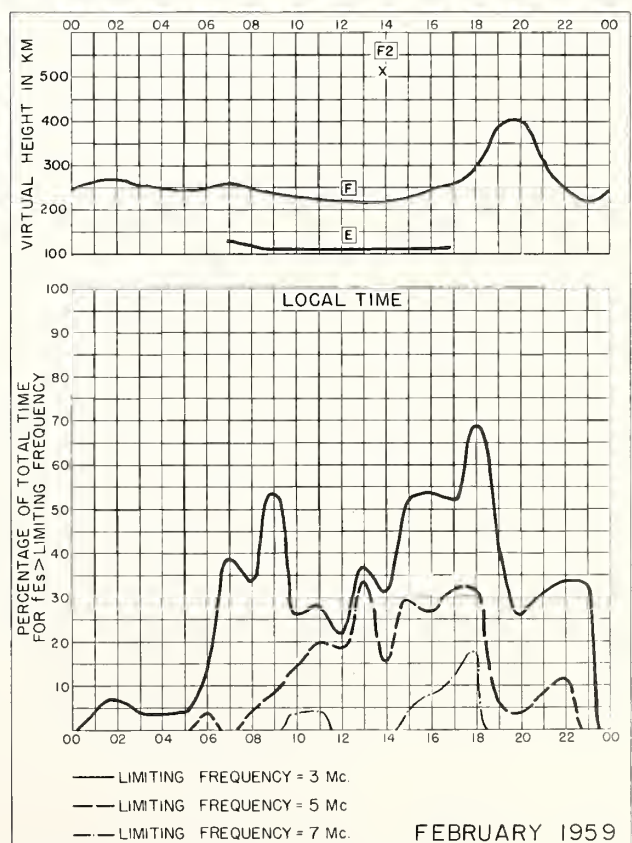
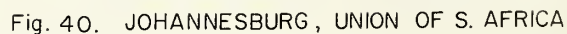
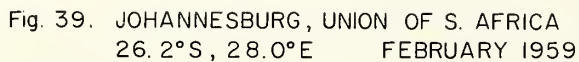
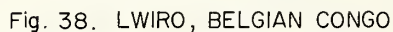


Fig. 36. SINGAPORE, BRITISH MALAYA  
FEBRUARY 1959





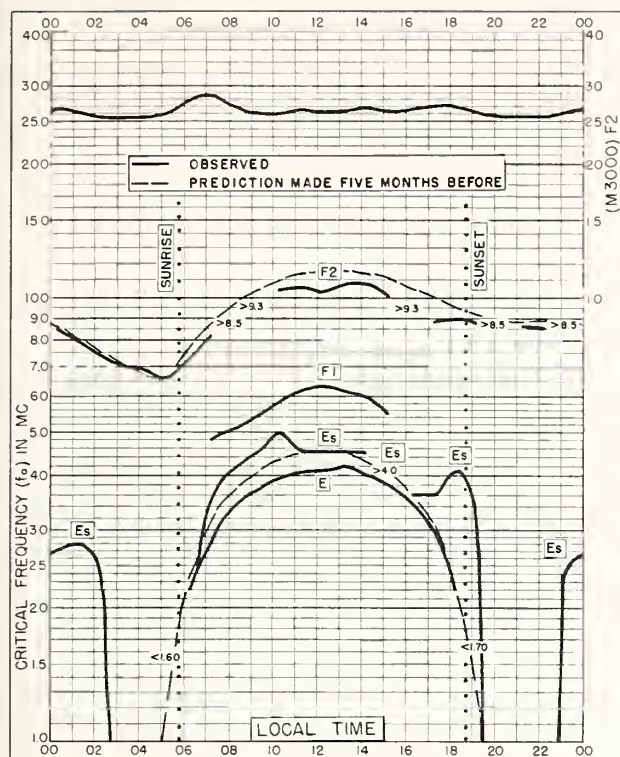


Fig. 41. BRISBANE, AUSTRALIA  
27.5°S, 152.9°E FEBRUARY 1959

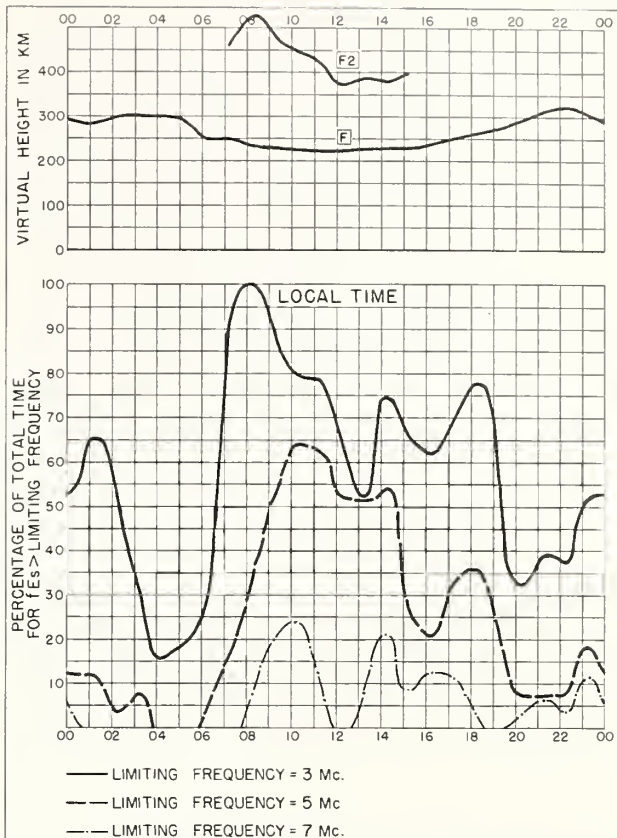


Fig. 42. BRISBANE, AUSTRALIA FEBRUARY 1959

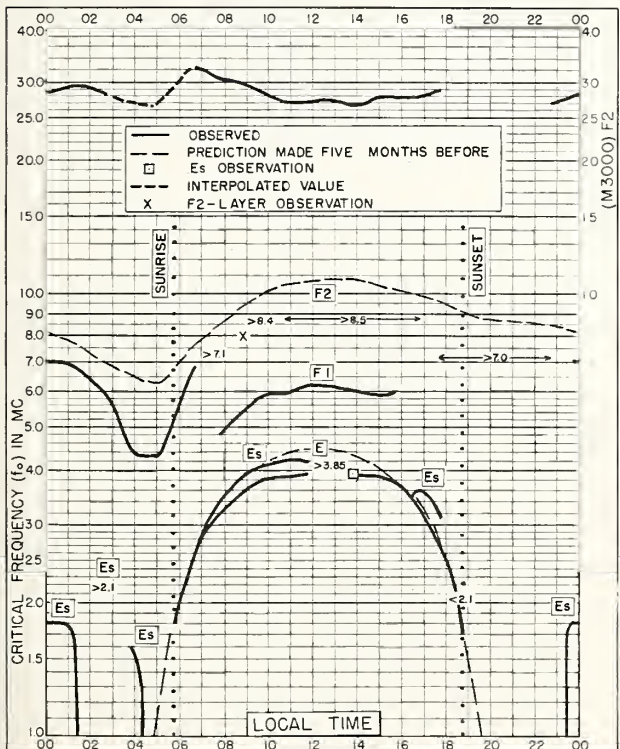


Fig. 43. WATHEROO, W. AUSTRALIA  
30.3°S, 115.9°E FEBRUARY 1959

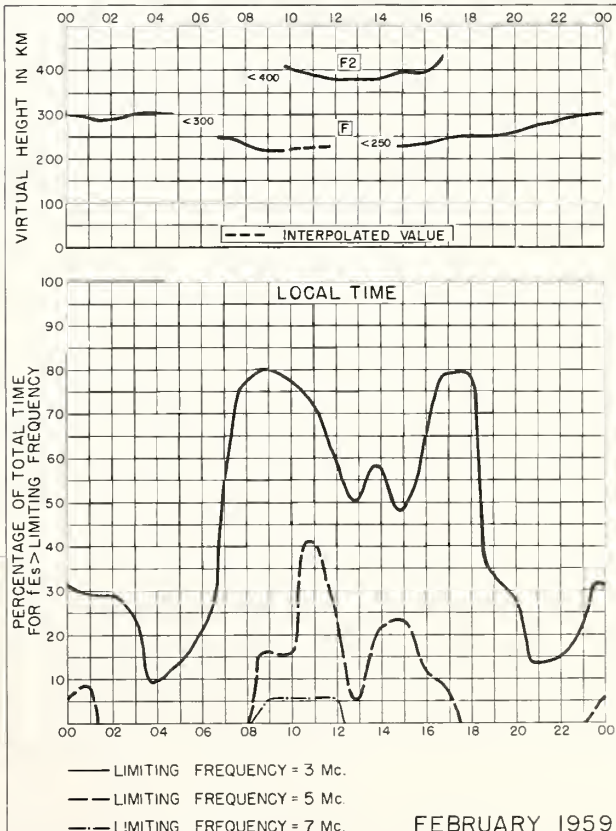
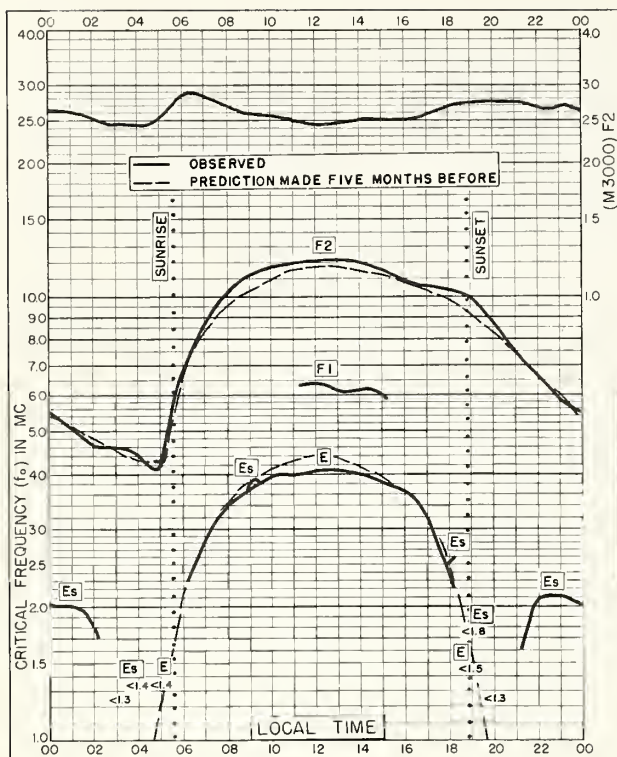
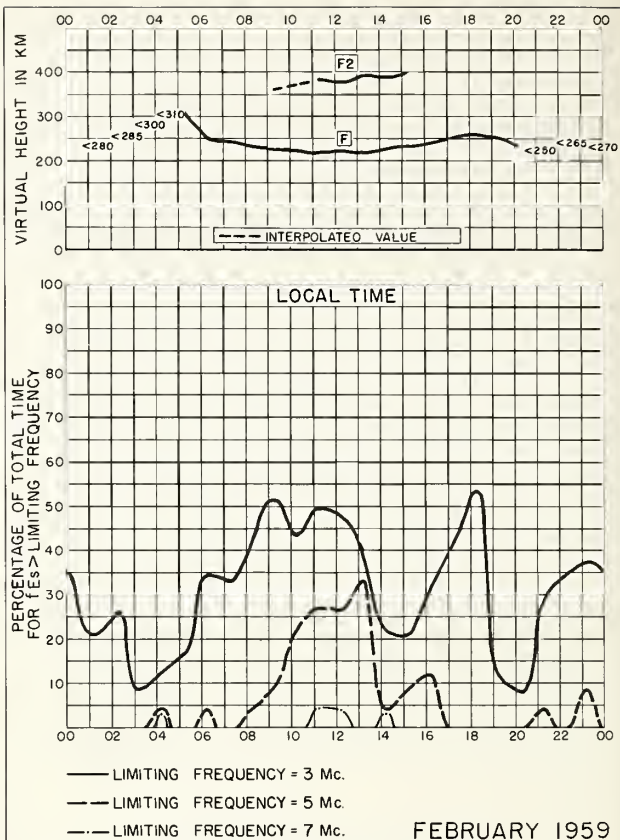


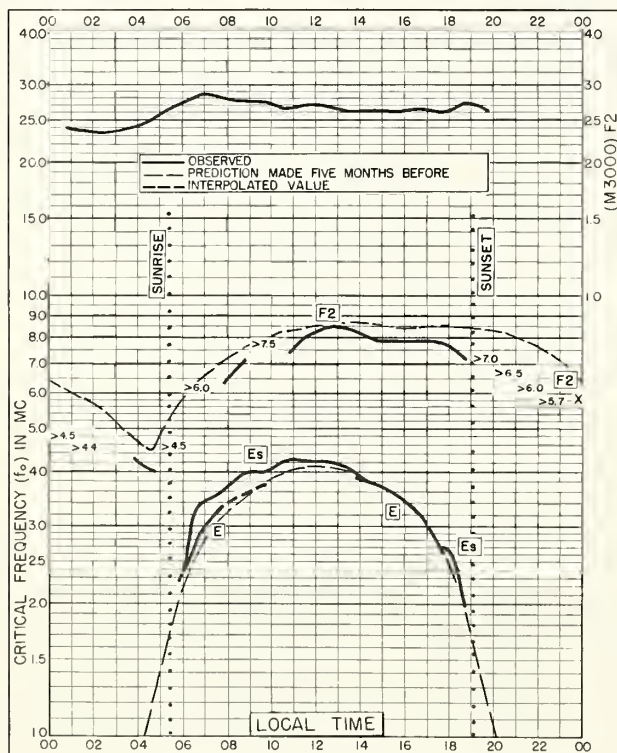
Fig. 44. WATHEROO, W. AUSTRALIA



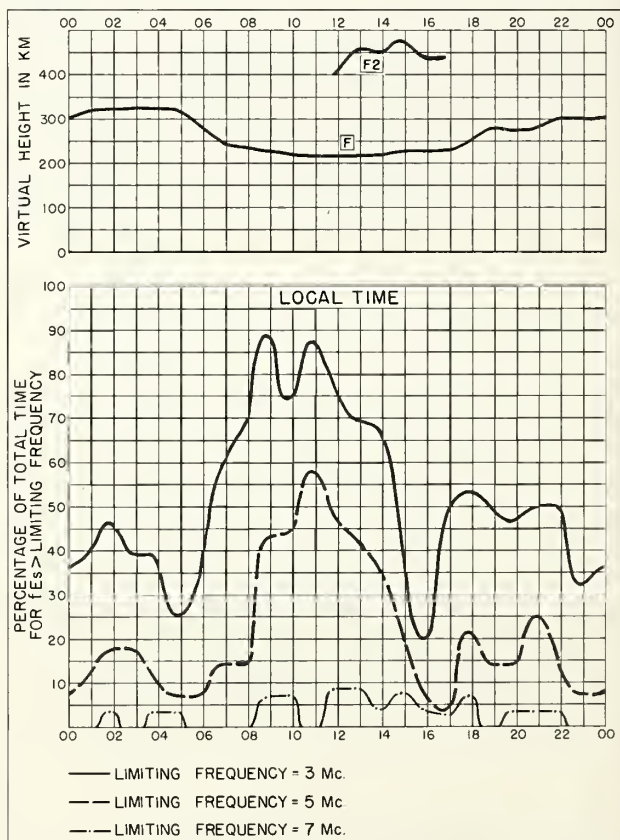
NBS 503



NBS 490



NBS 503



NBS 490



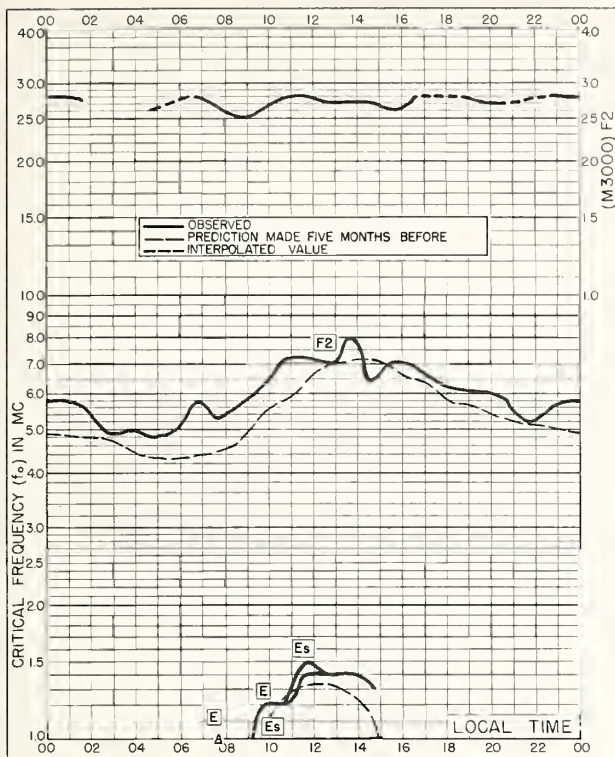


Fig. 49 RESOLUTE BAY, CANADA  
74.7°N, 94.9°W JANUARY 1959

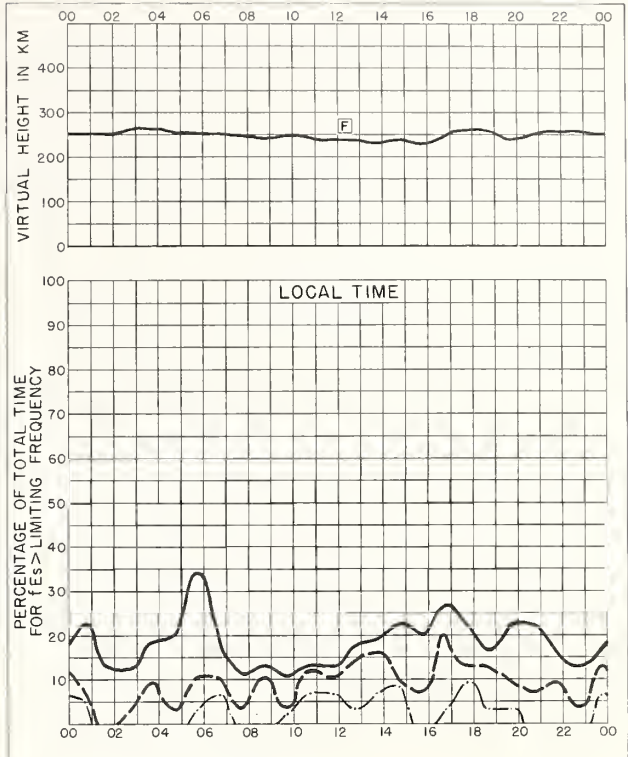


Fig. 50. RESOLUTE BAY, CANADA  
JANUARY 1959

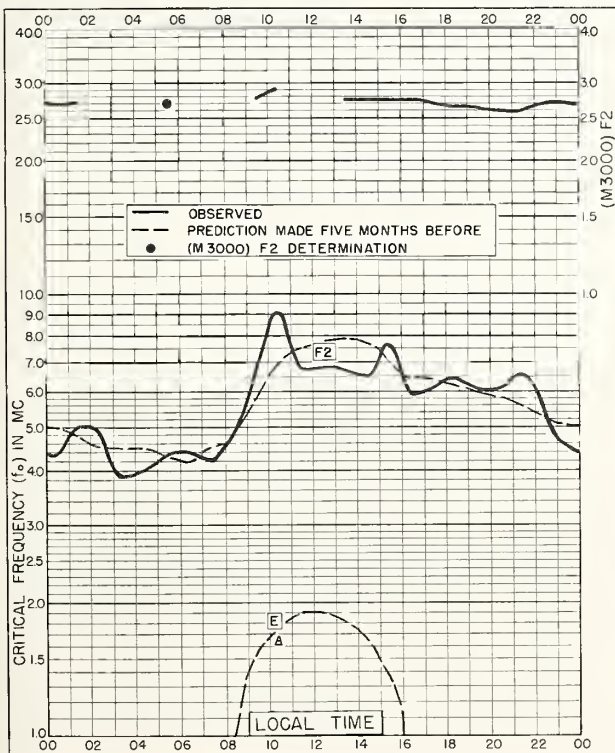


Fig. 51. GODHAVN, GREENLAND  
69.3°N, 53.5°W JANUARY 1959

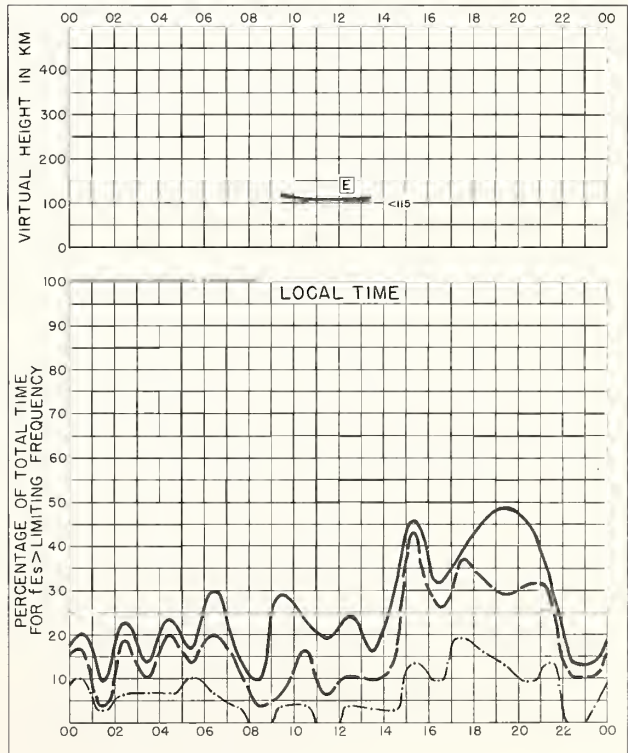


Fig. 52. GODHAVN, GREENLAND JANUARY 1959

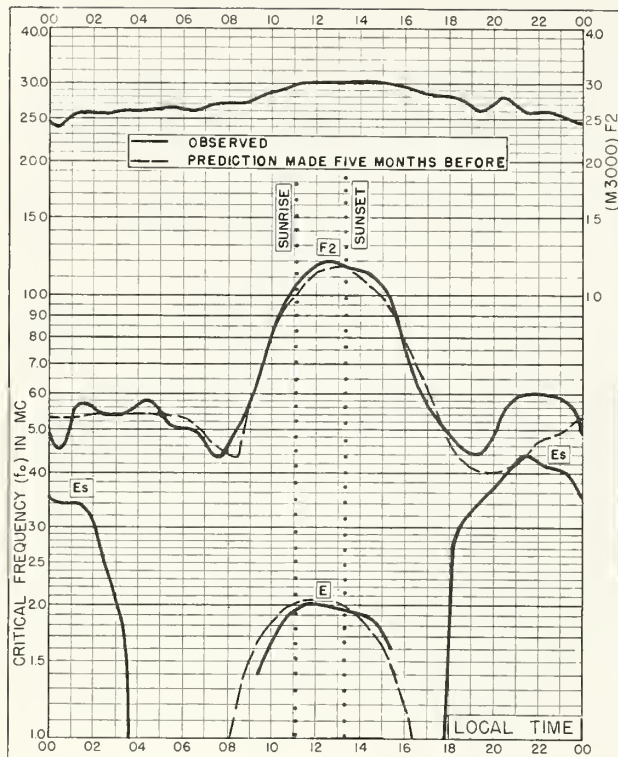


Fig. 53. KIRUNA, SWEDEN  
67.8°N, 20.3°E

JANUARY 1959

NBS 503

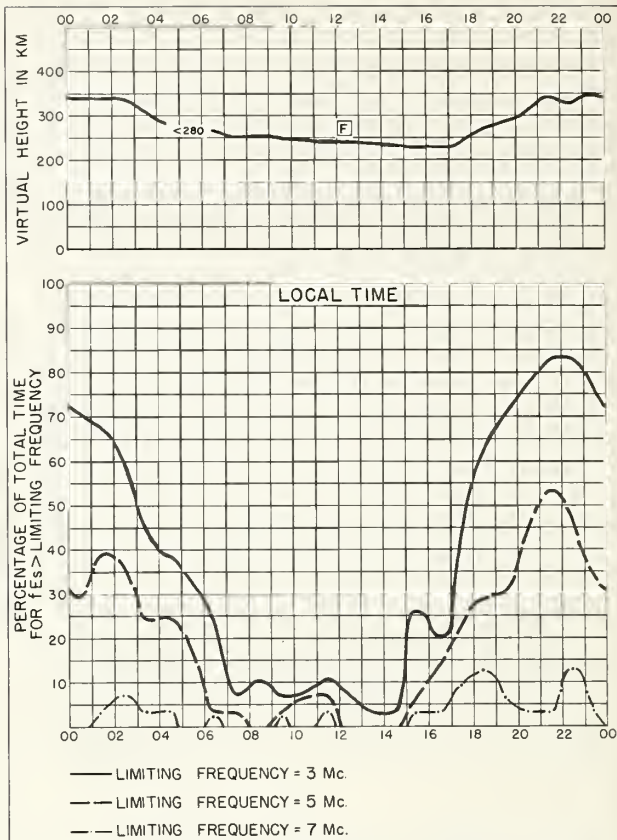


Fig. 54. KIRUNA, SWEDEN

JANUARY 1959

NBS 490

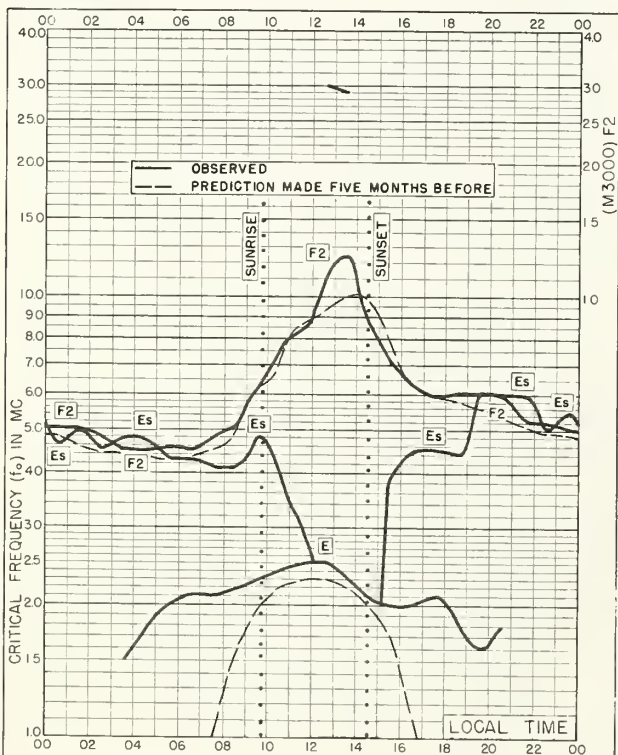


Fig. 55. BAKER LAKE, CANADA  
64.3°N, 96.0°W

JANUARY 1959

NBS 503

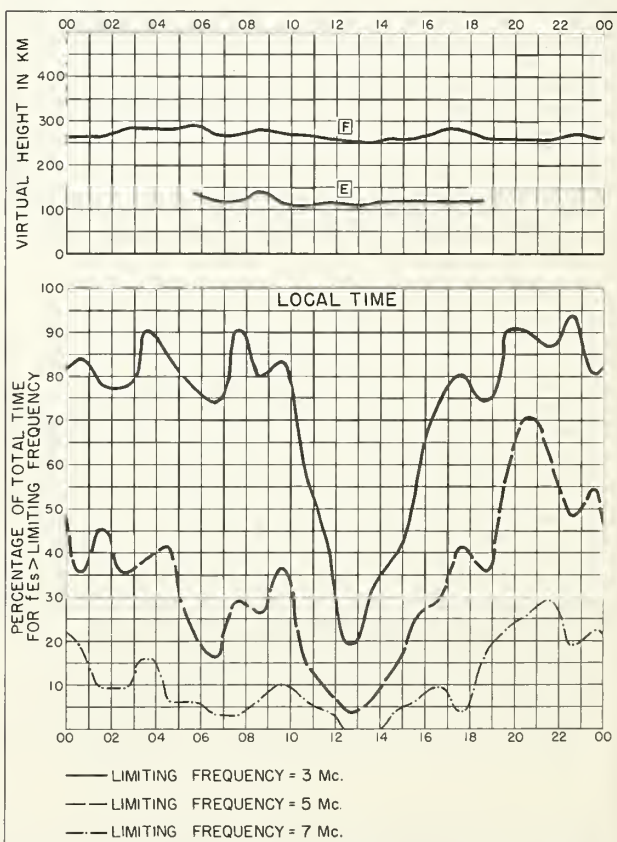


Fig. 56. BAKER LAKE, CANADA JANUARY 1959

NBS 490



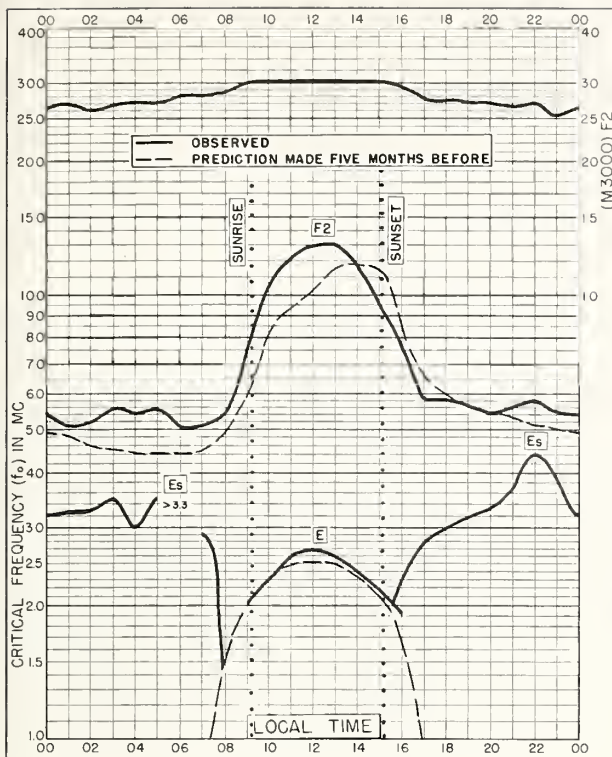


Fig. 57. NARSARSSUAK, GREENLAND  
61.2°N, 45.4°W JANUARY 1959

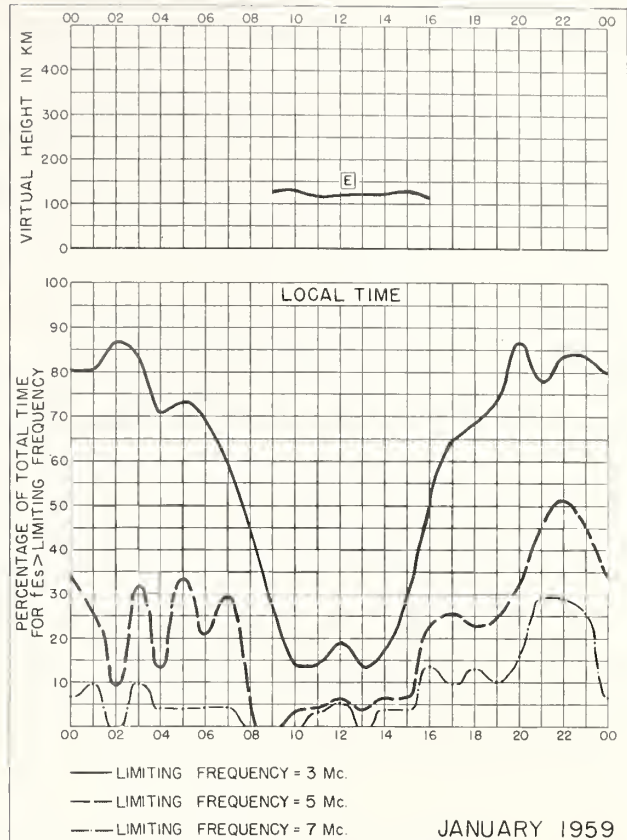


Fig. 58. NARSARSSUAK, GREENLAND

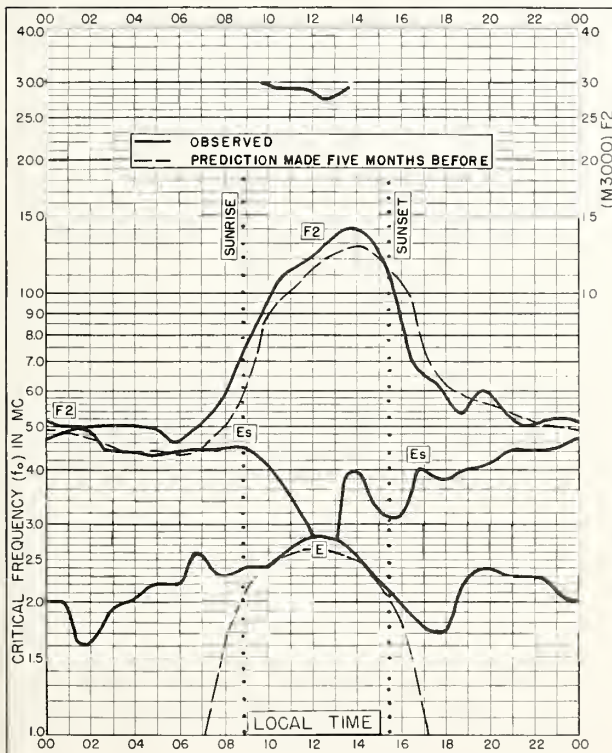


Fig. 59. CHURCHILL, CANADA  
58.8°N, 94.2°W JANUARY 1959

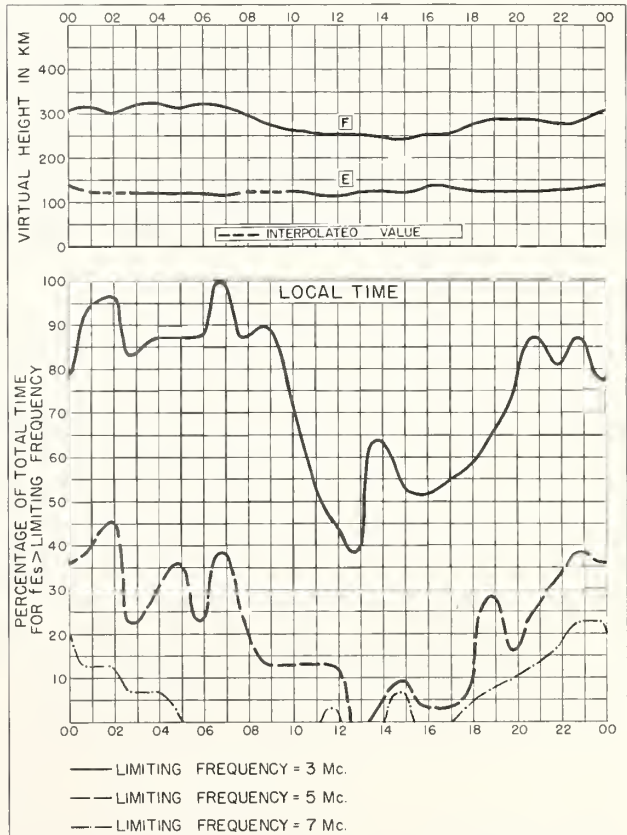


Fig. 60. CHURCHILL, CANADA JANUARY 1959

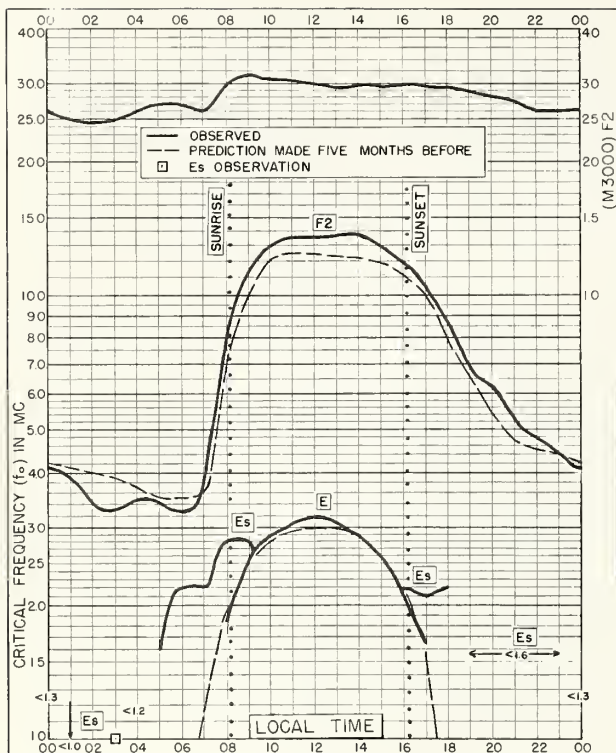


Fig. 61. SLOUGH ENGLAND  
51.5°N, 0.6°W

JANUARY 1959

NBS 503

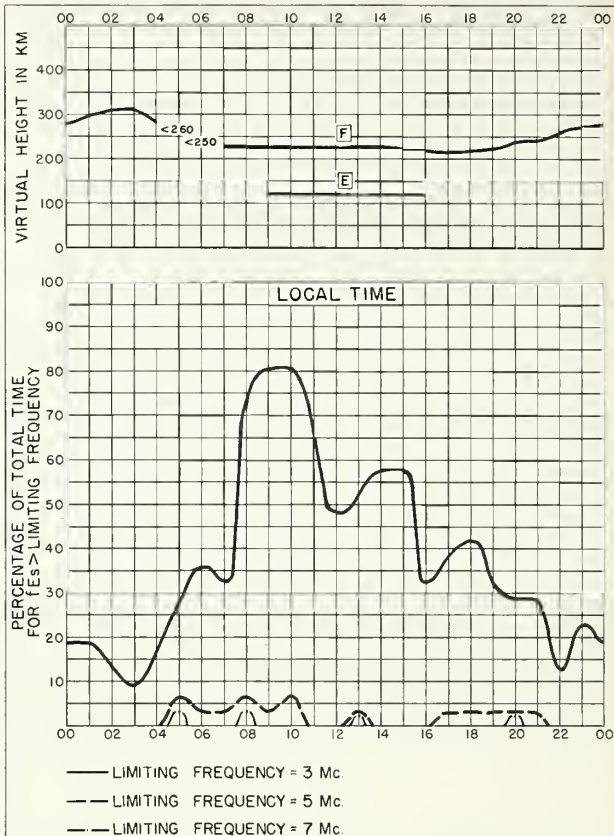


Fig. 62. SLOUGH, ENGLAND

JANUARY 1959

NBS 490

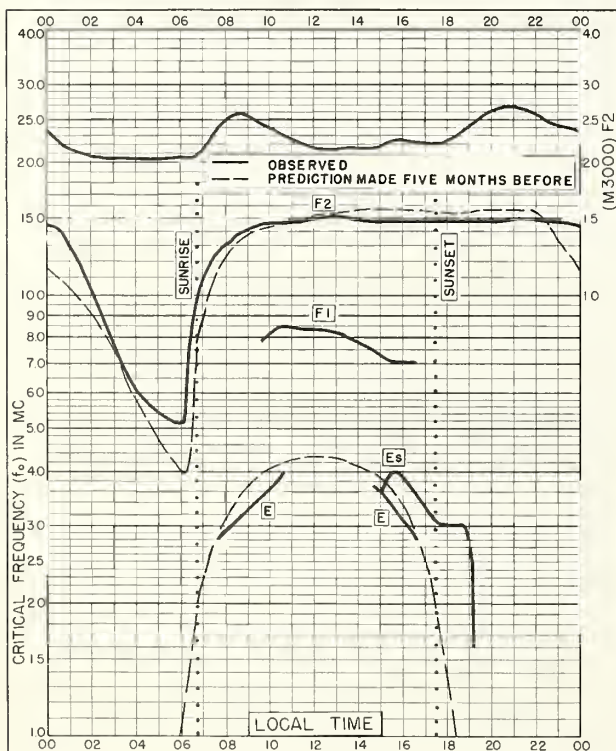


Fig. 63. MACAU  
22.2°N, 113.6°E

JANUARY 1959

NBS 503

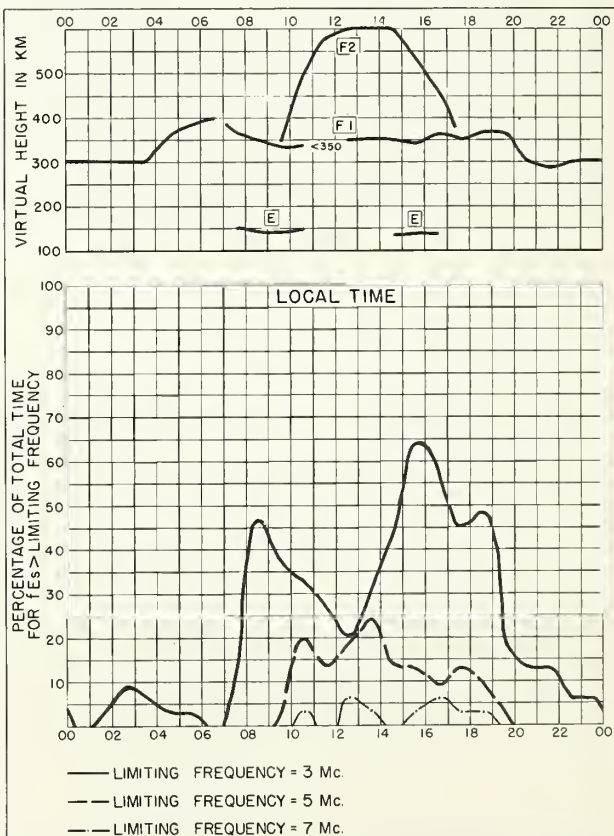


Fig. 64. MACAU

JANUARY 1959

NBS 490



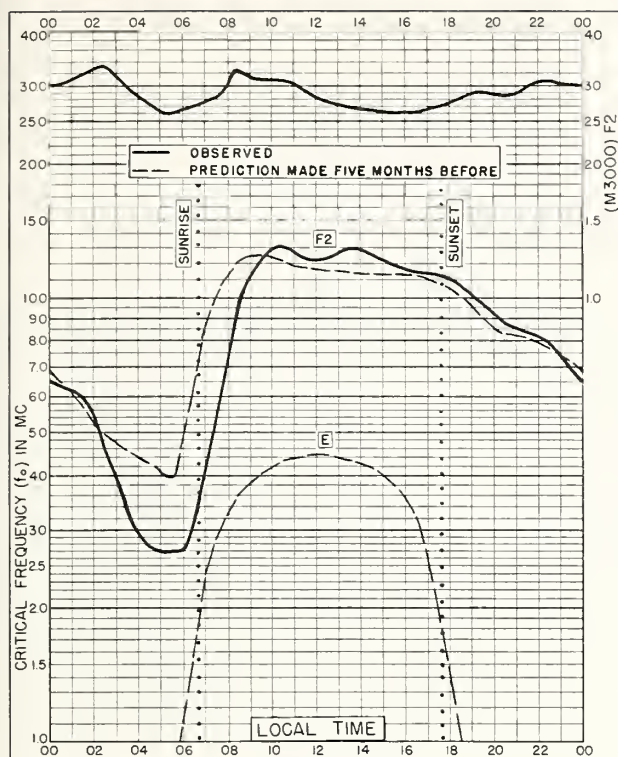


Fig. 65. EL CERILLO, MEXICO  
19.1°N, 99.6°W JANUARY 1959

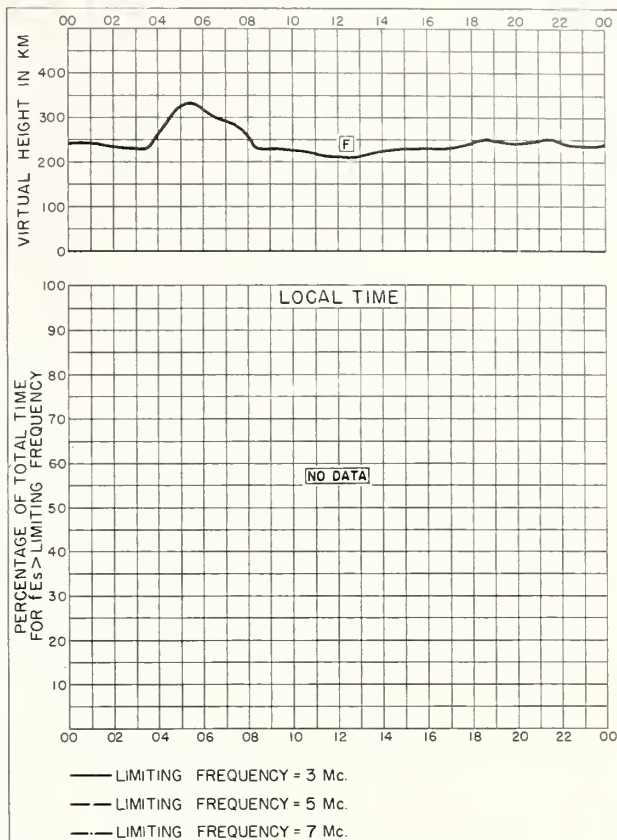


Fig. 66. EL CERILLO, MEXICO JANUARY 1959

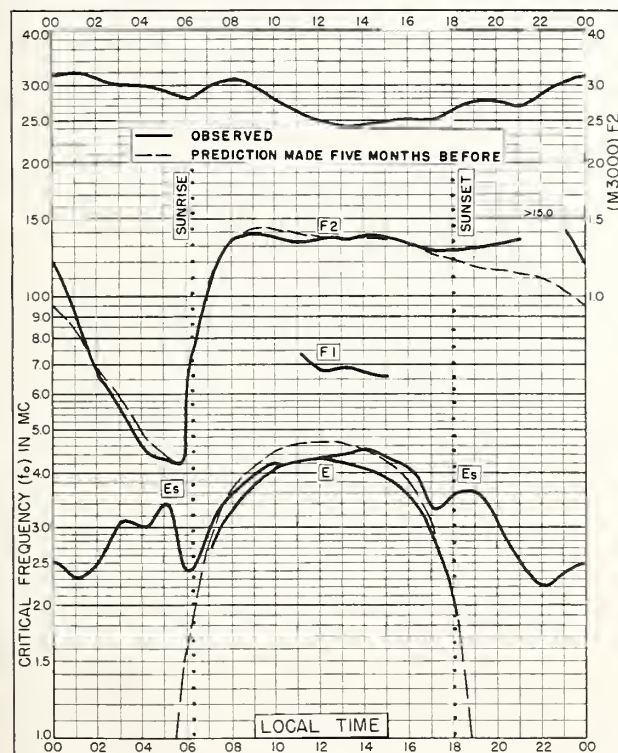


Fig. 67. BOGOTA, COLOMBIA  
4.5°N, 74.2°W JANUARY 1959

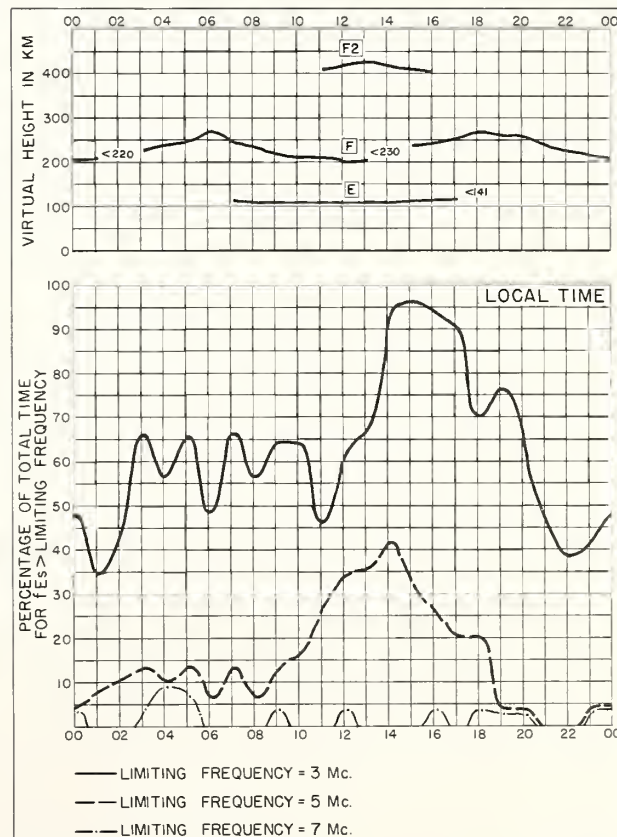
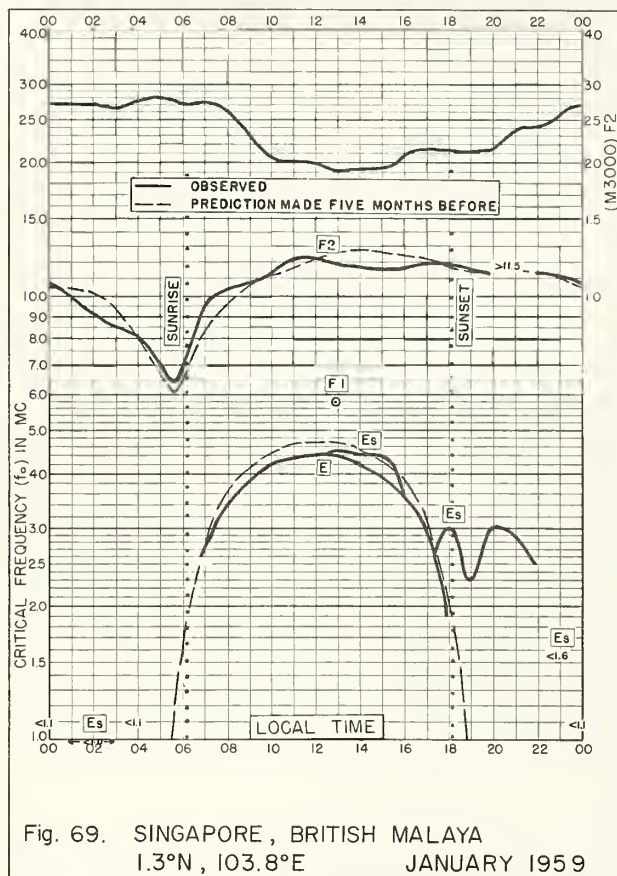
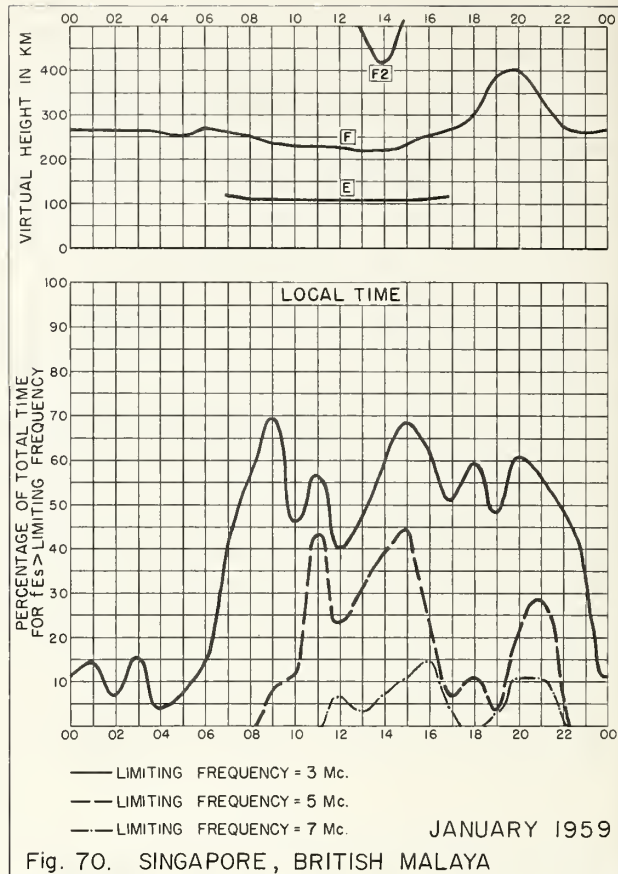


Fig. 68. BOGOTA, COLOMBIA JANUARY 1959



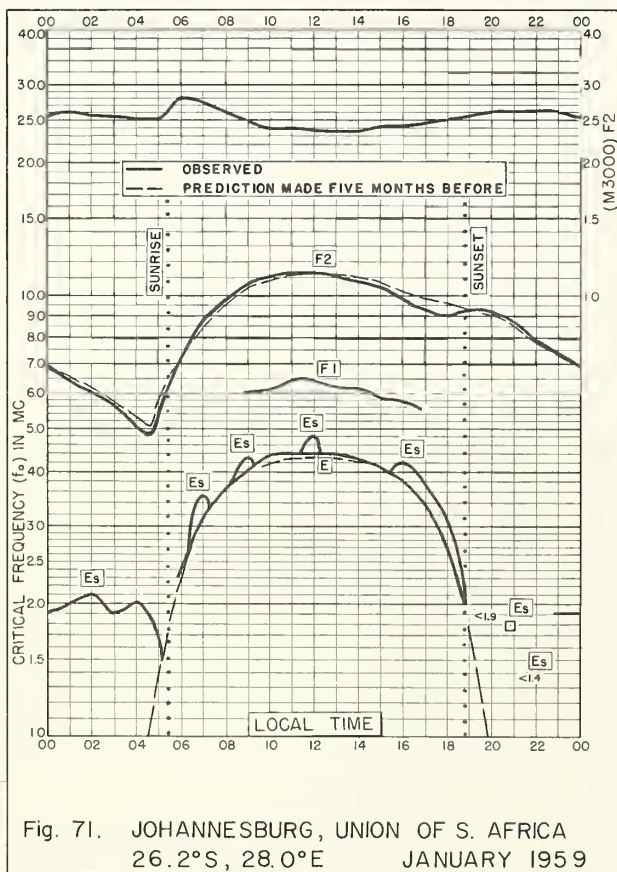
Copyright © 1959 by the American Radio Relay Union, Inc.

NBS 503



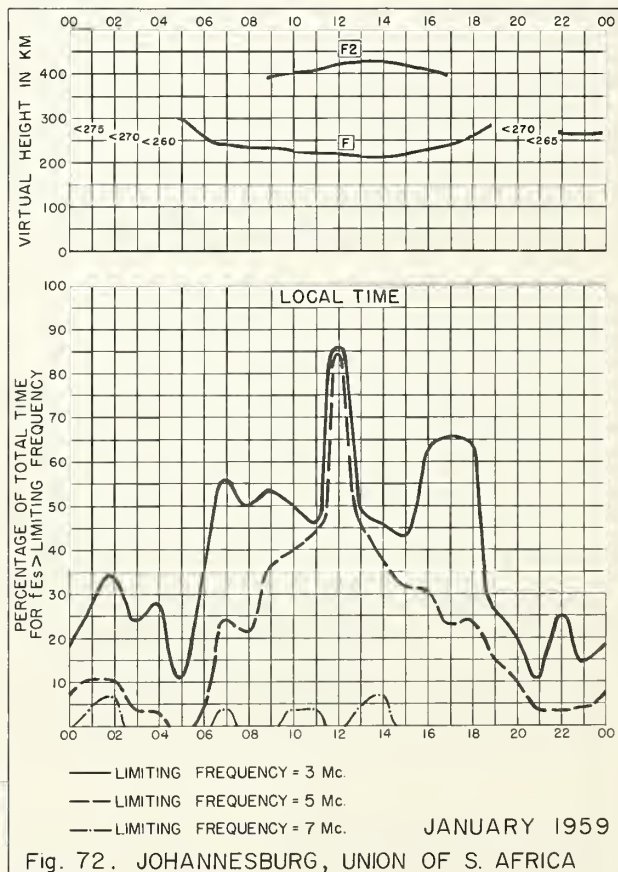
Copyright © 1959 by the American Radio Relay Union, Inc.

NBS 490



Copyright © 1959 by the American Radio Relay Union, Inc.

NBS 503



Copyright © 1959 by the American Radio Relay Union, Inc.

NBS 490



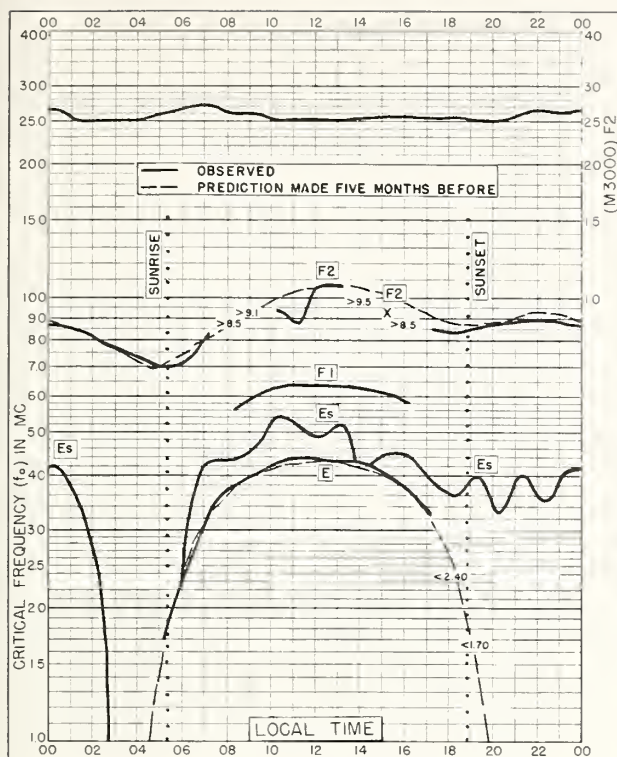


Fig. 73. BRISBANE, AUSTRALIA  
27.5°S, 152.9°E      JANUARY 1959

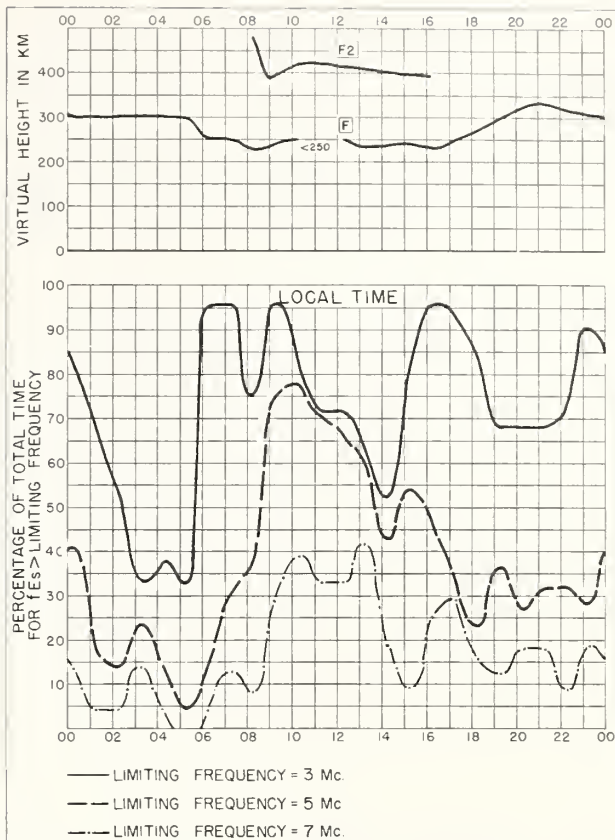


Fig. 74. BRISBANE, AUSTRALIA JANUARY 1959

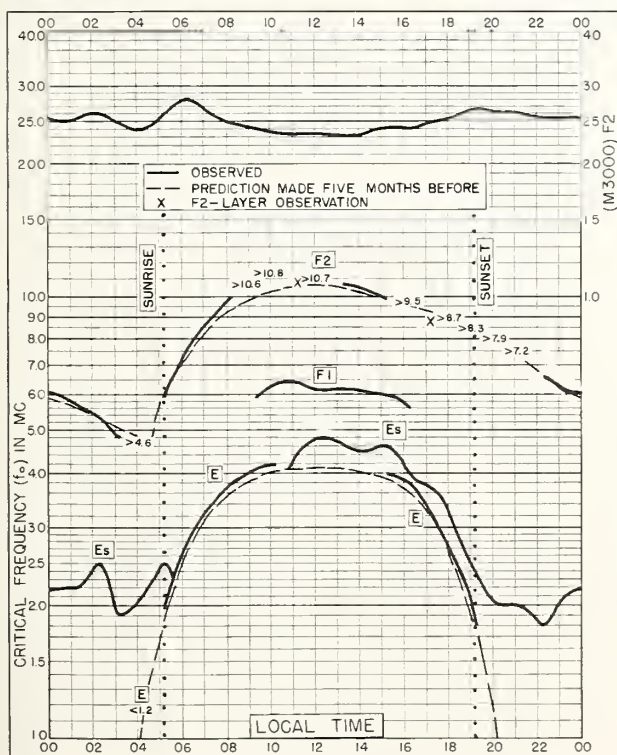


Fig. 75. CAPETOWN, UNION OF S. AFRICA  
34.1°S, 18.3°E      JANUARY 1959

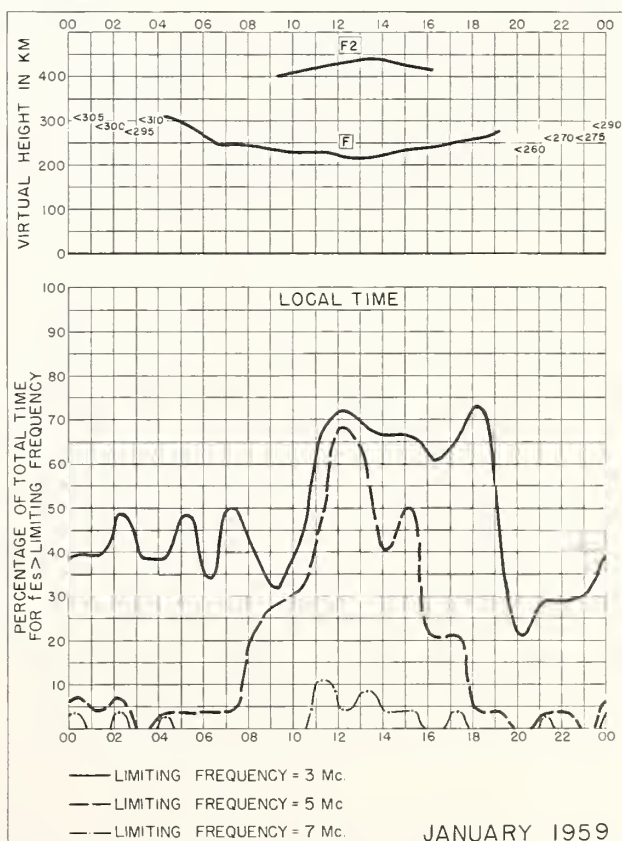


Fig. 76. CAPETOWN, UNION OF S. AFRICA

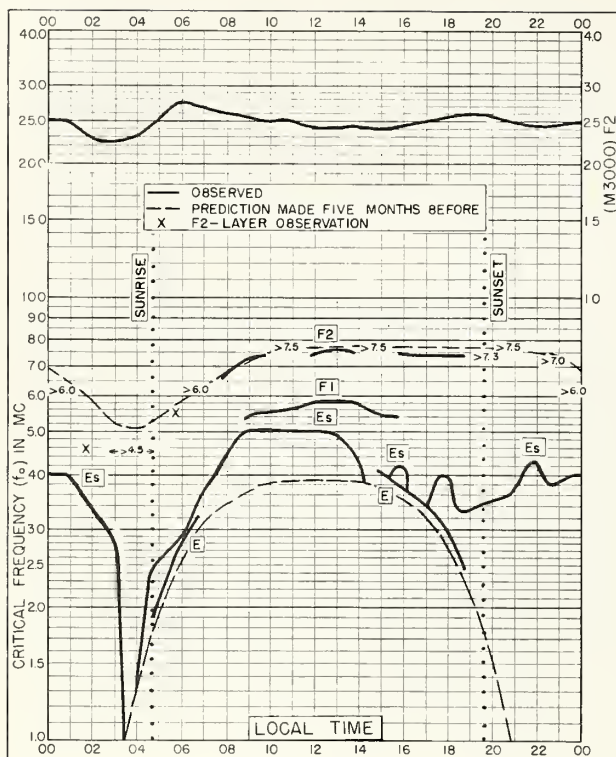


Fig. 77. HOBART, TASMANIA  
42.9°S, 147.2°E

JANUARY 1959

NBS 503

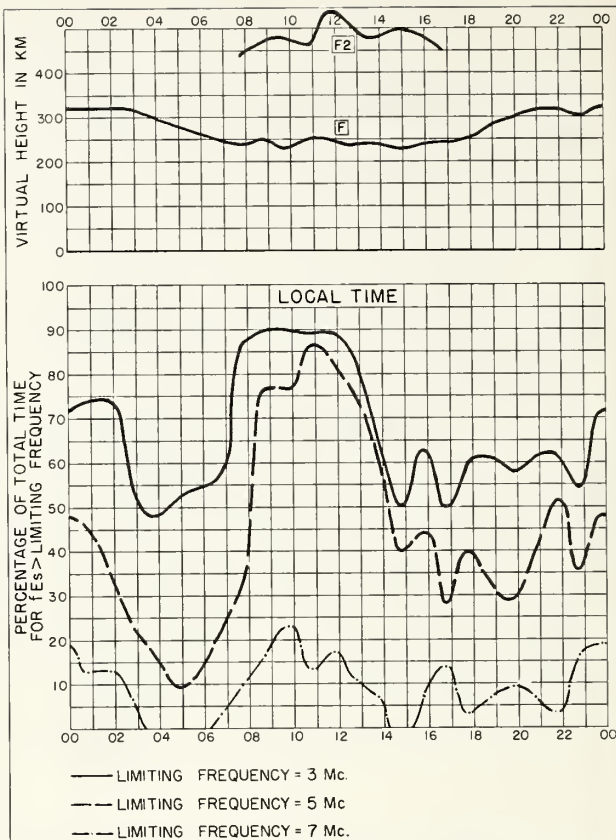


Fig. 78. HOBART, TASMANIA

JANUARY 1959

NBS 490

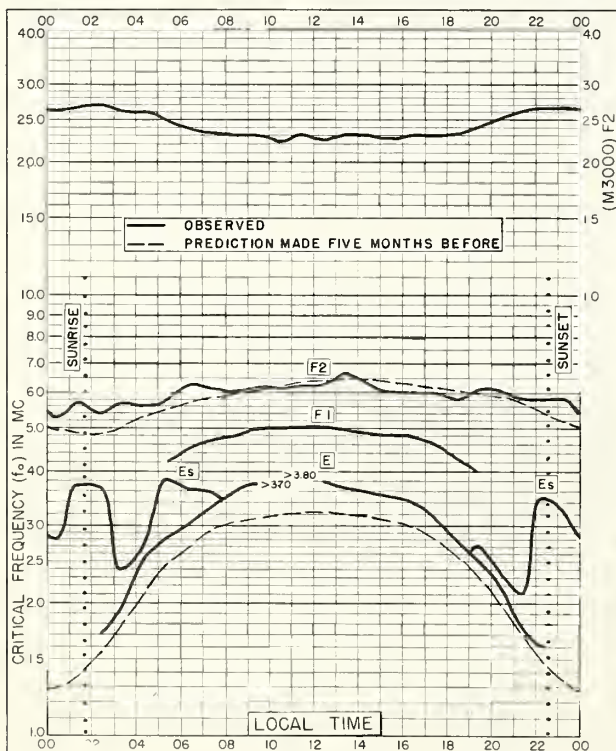


Fig. 79. WILKES STATION  
66.2°S, 110.5°E

JANUARY 1959

NBS 503

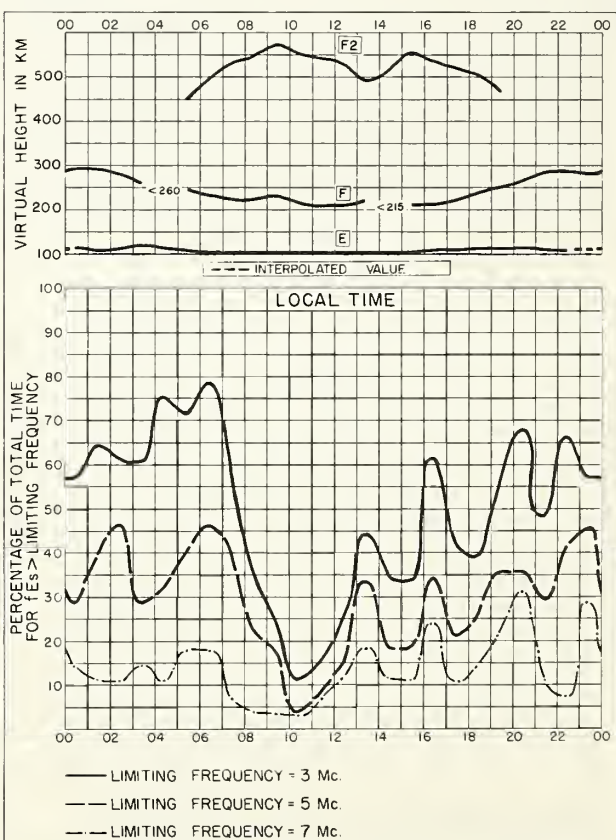


Fig. 80. WILKES STATION

JANUARY 1959

NBS 490



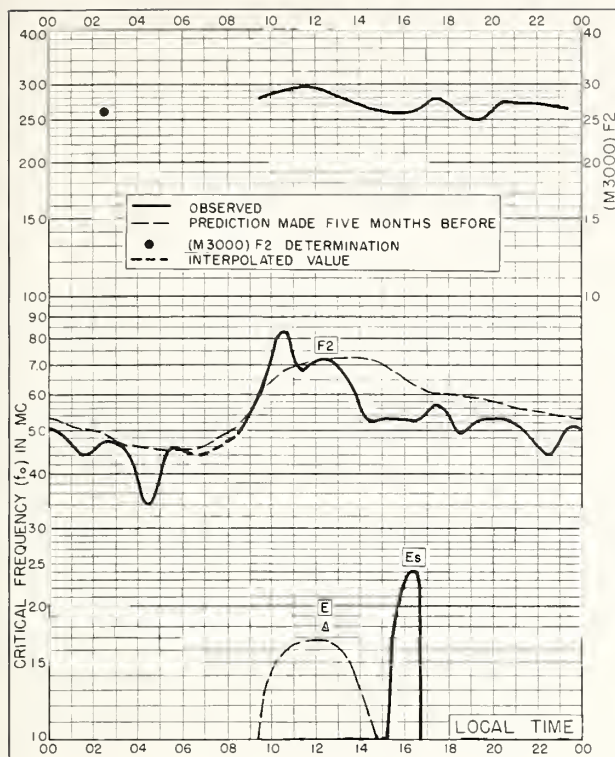


Fig. 81. GODHAVN, GREENLAND  
69.3°N, 53.5°W DECEMBER 1958

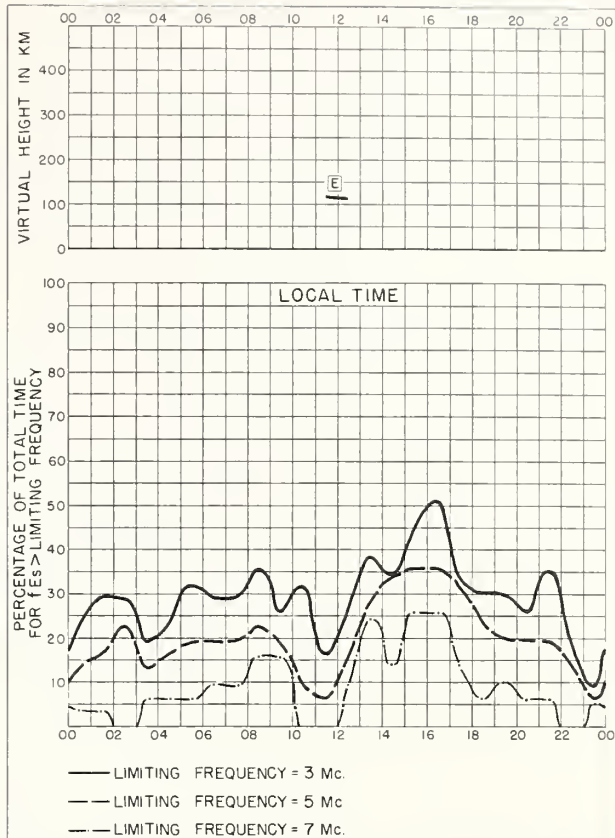


Fig. 82. GODHAVN, GREENLAND DECEMBER 1958

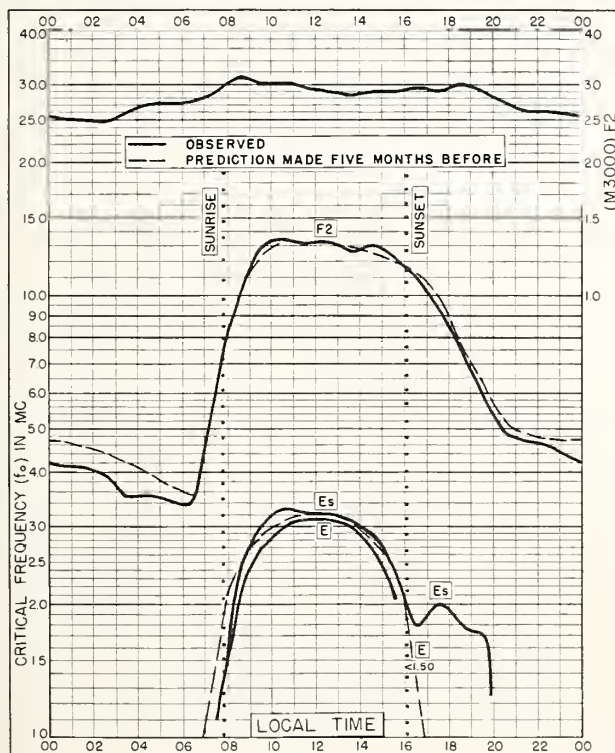


Fig. 83. FREIBURG, GERMANY  
48.1°N, 7.6°E DECEMBER 1958

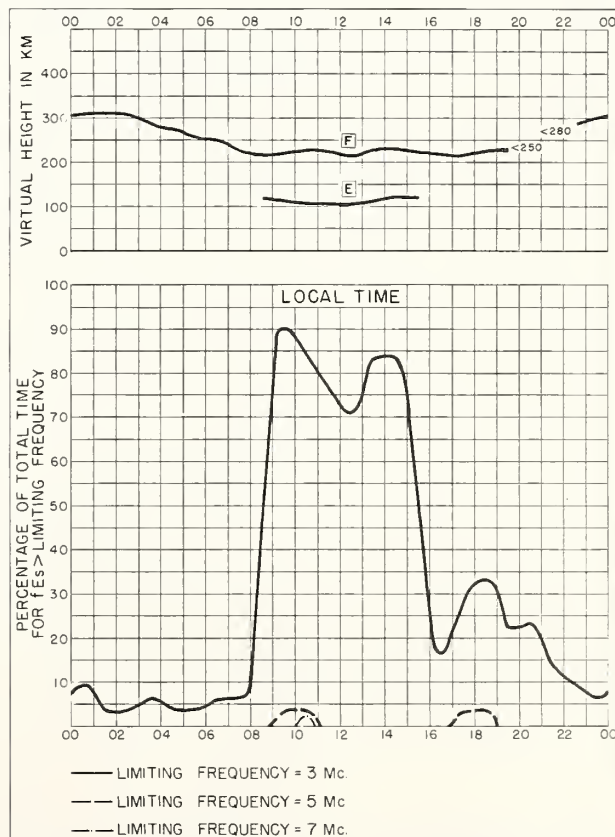


Fig. 84. FREIBURG, GERMANY DECEMBER 1958

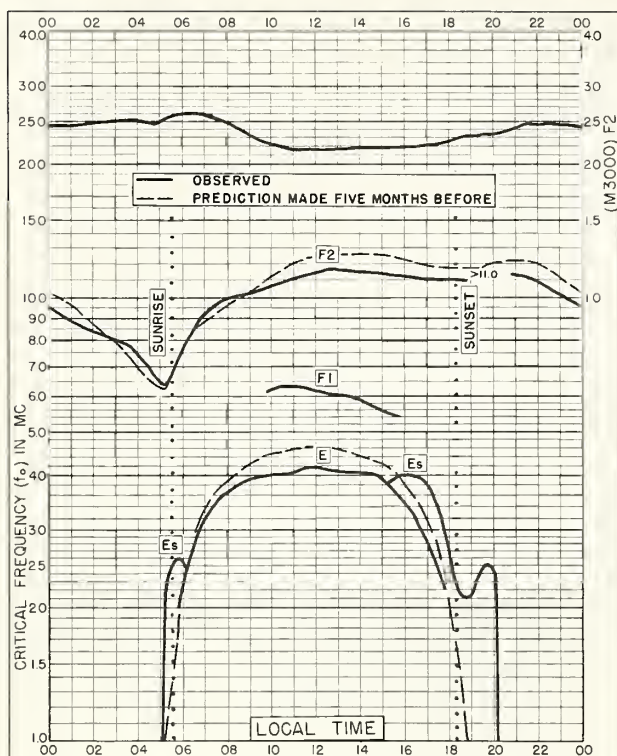


Fig. 85. ELISABETHVILLE, BELGIAN CONGO  
11.6°S, 27.5°E DECEMBER 1958

NBS 503

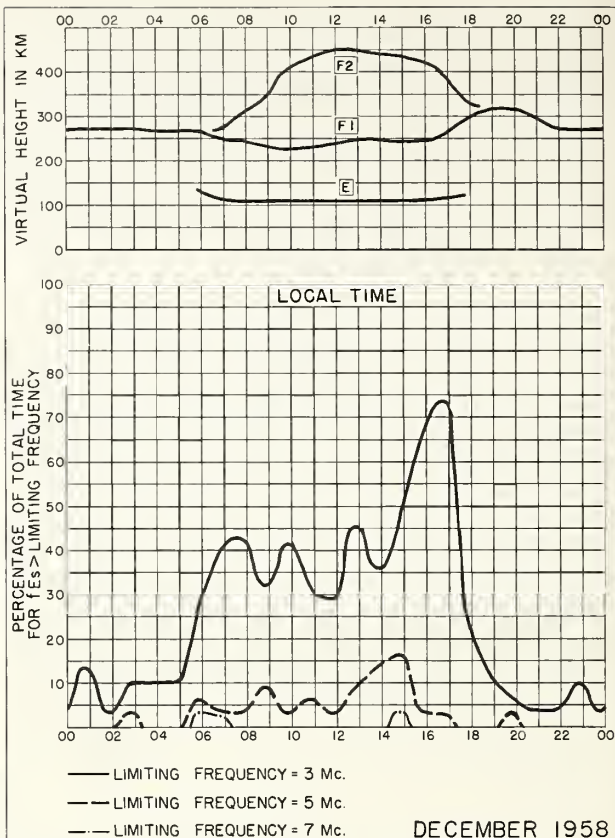


Fig. 86. ELISABETHVILLE, BELGIAN CONGO  
DECEMBER 1958

NBS 490

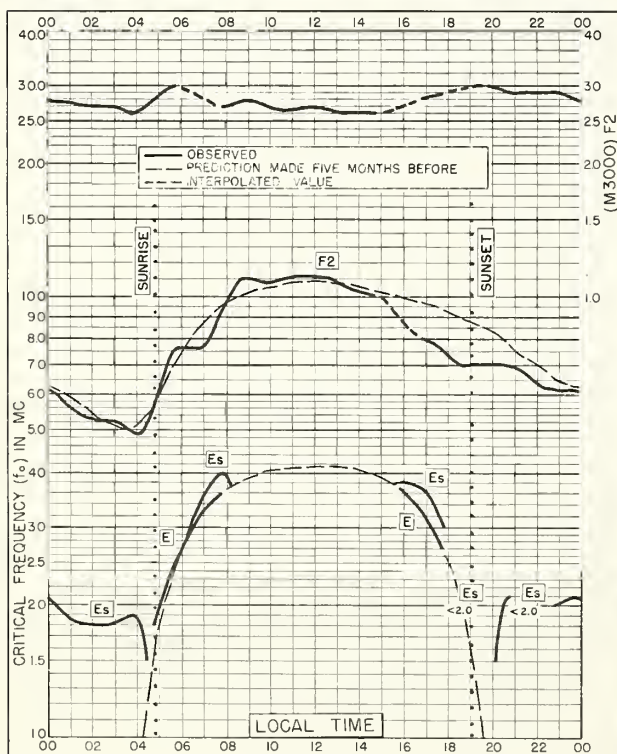


Fig. 87. GRAHAMSTOWN, UNION OF S. AFRICA  
33.3°S, 26.5°E DECEMBER 1958

NBS 503

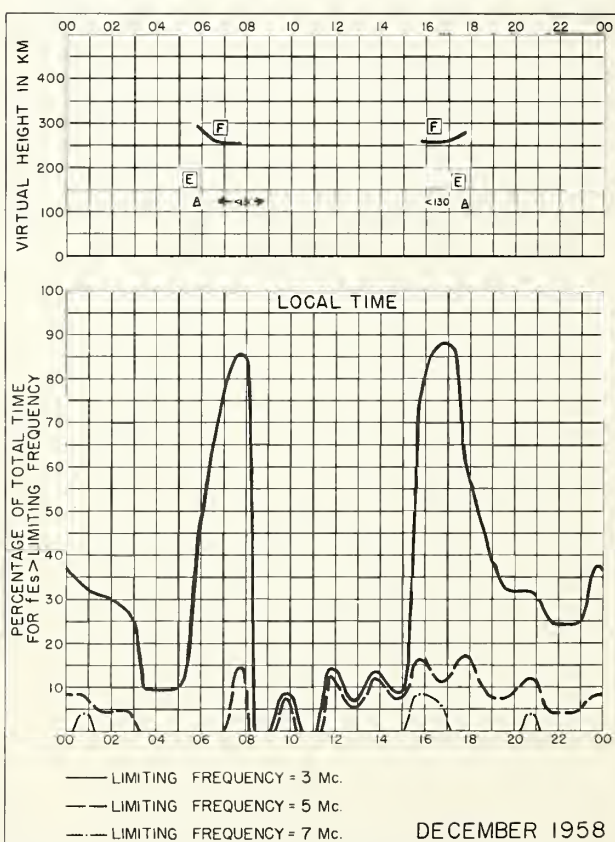


Fig. 88. GRAHAMSTOWN, UNION OF S. AFRICA  
DECEMBER 1958

NBS 490



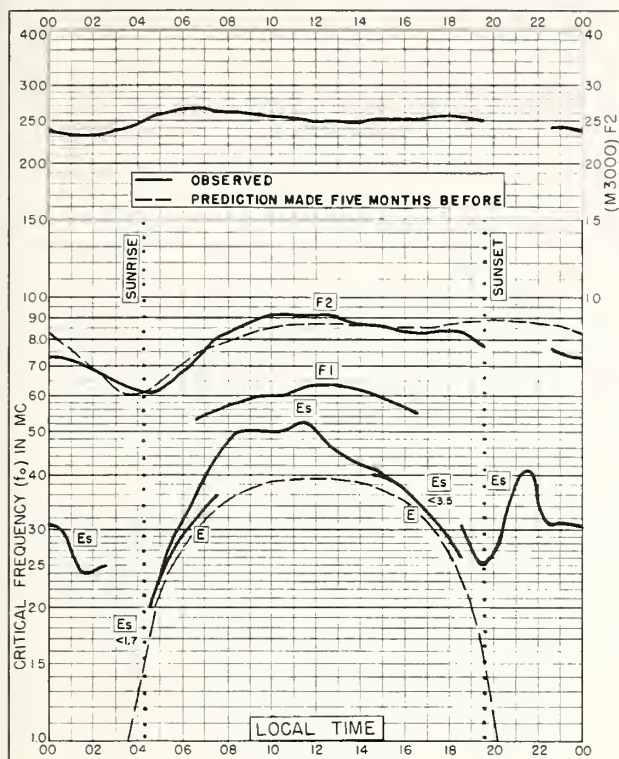


Fig. 89. CHRISTCHURCH, NEW ZEALAND  
43.6°S, 172.8°E DECEMBER 1958

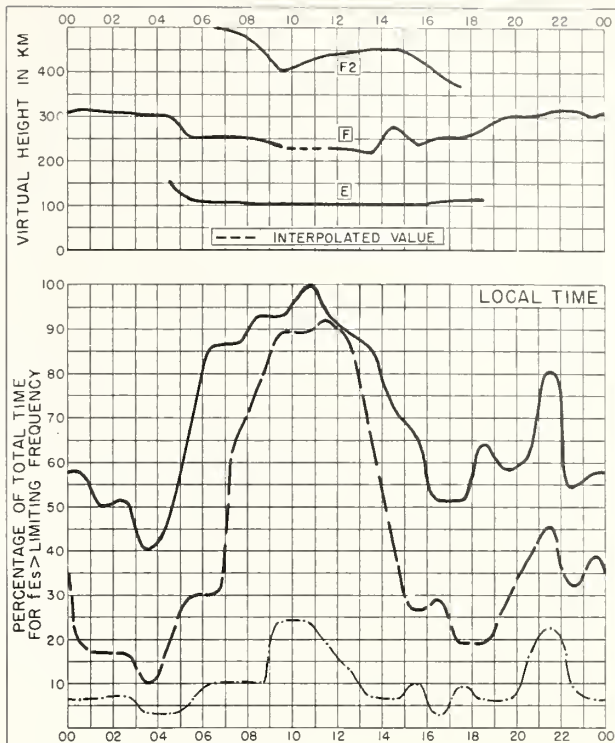


Fig. 90. CHRISTCHURCH, NEW ZEALAND  
DECEMBER 1958

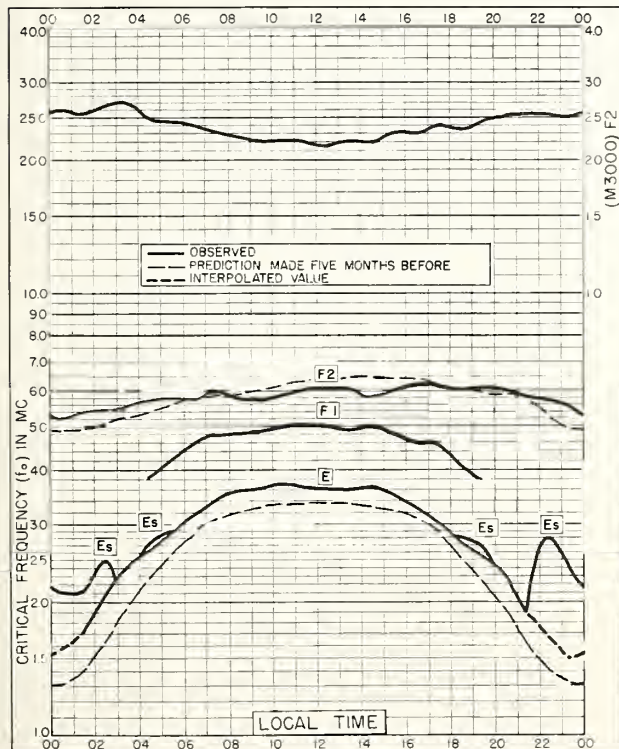


Fig. 91. WILKES STATION  
66.2°S, 110.5°E DECEMBER 1958

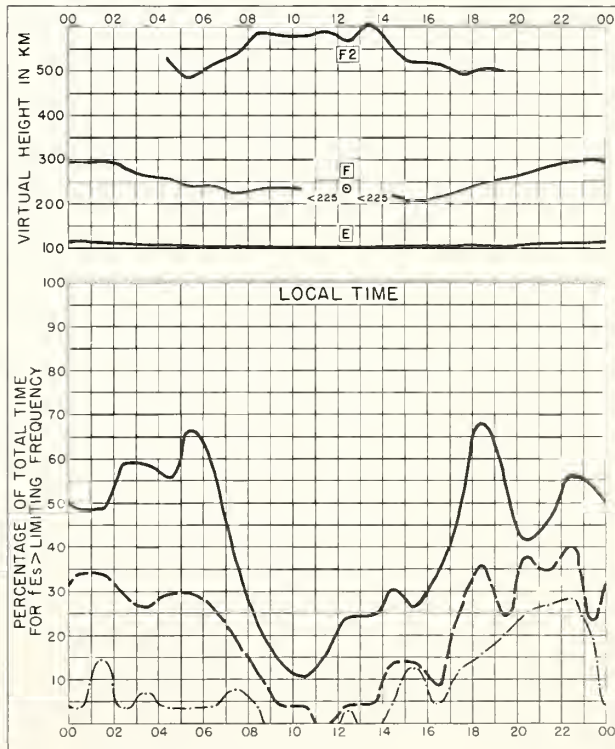


Fig. 92. WILKES STATION  
DECEMBER 1958



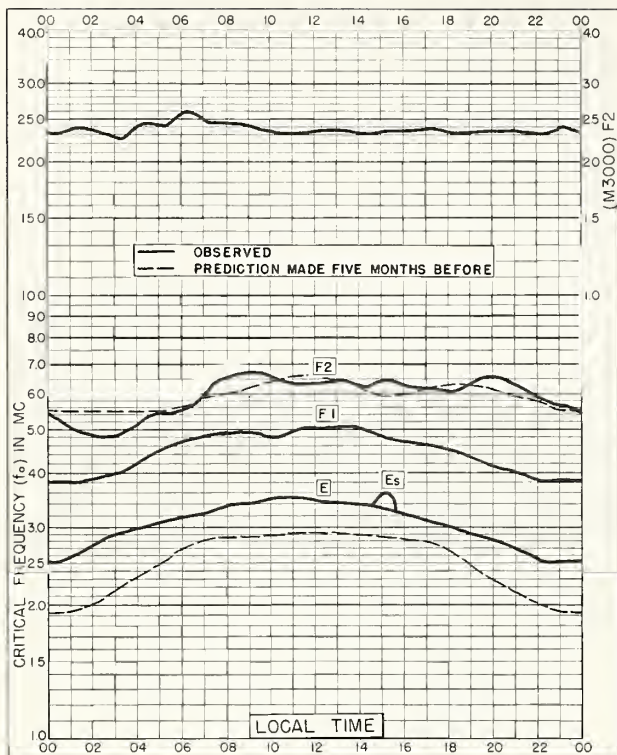


Fig. 93. LITTLE AMERICA  
78.2°S, 162.2°W DECEMBER 1958

NBS 503

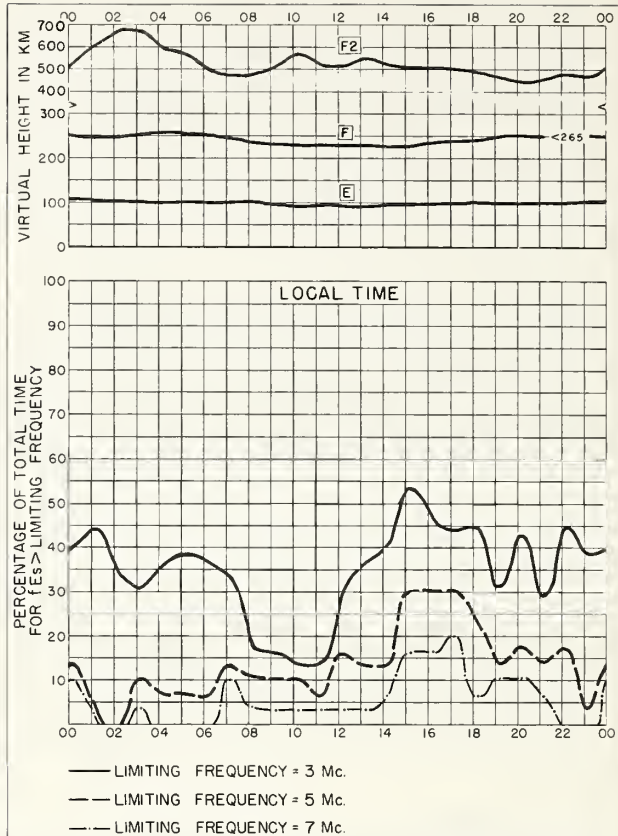


Fig. 94. LITTLE AMERICA DECEMBER 1958

NBS 490

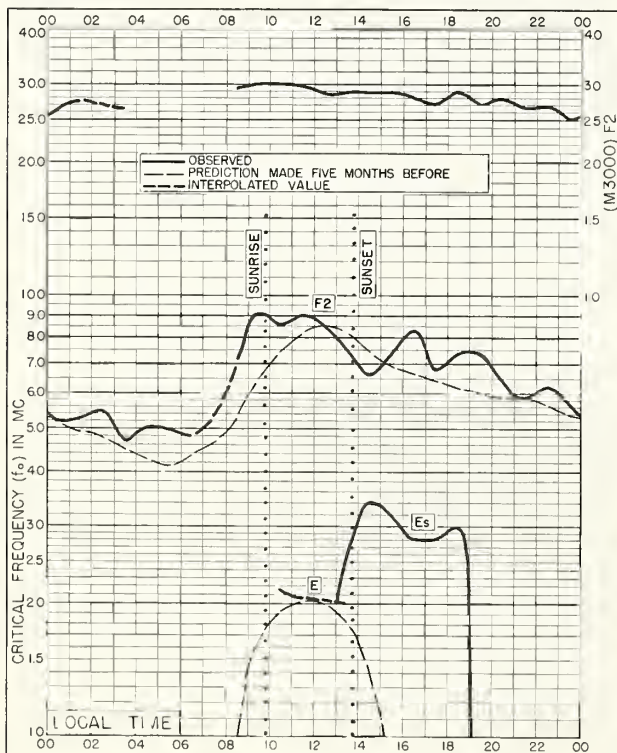


Fig. 95. GODHAVN, GREENLAND  
69.3°N, 53.5°W NOVEMBER 1958

NBS 503

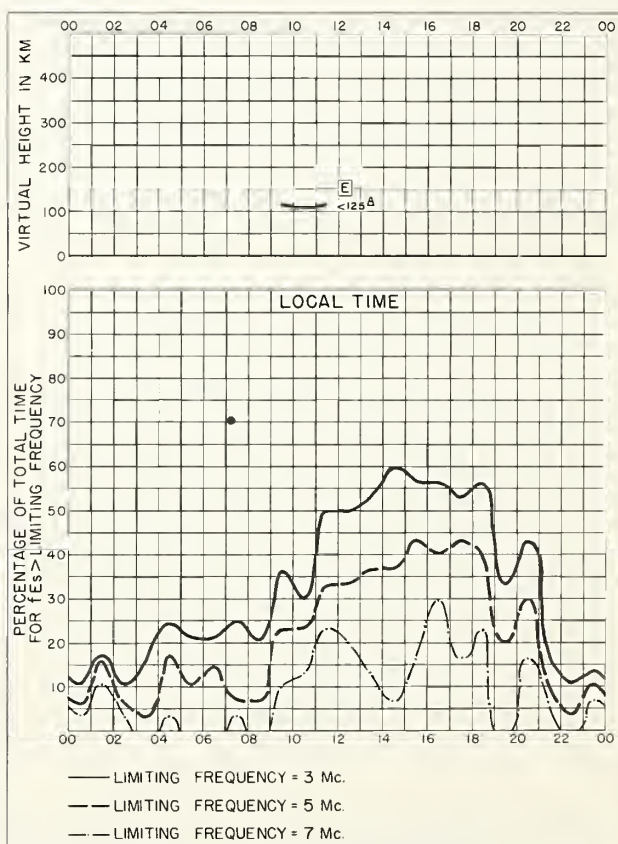


Fig. 96. GODHAVN, GREENLAND NOVEMBER 1958

NBS 490

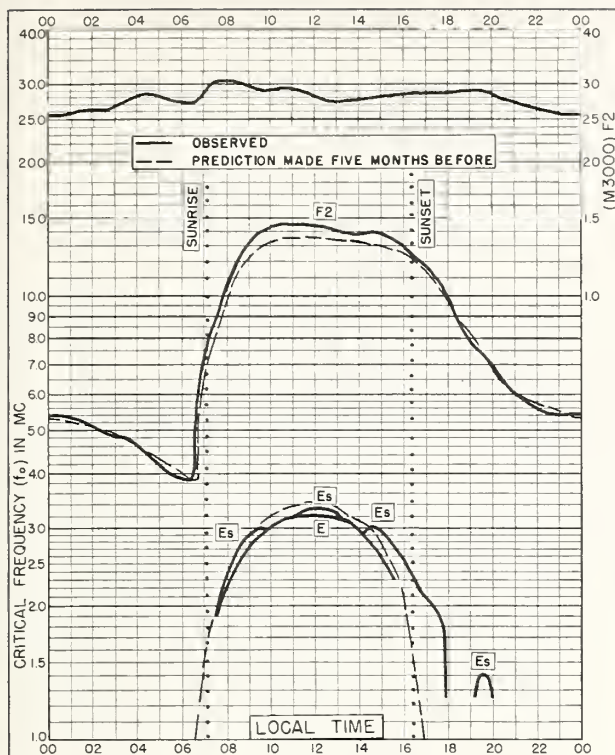
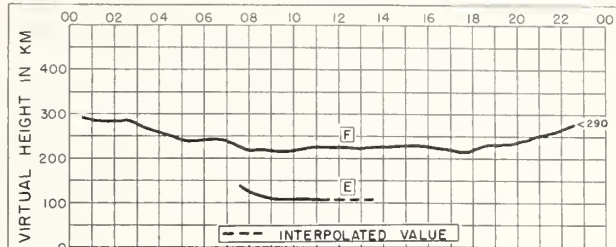


Fig. 97. FREIBURG, GERMANY  
48.1°N, 7.6°E NOVEMBER 1958



— LIMITING FREQUENCY = 3 Mc.  
 --- LIMITING FREQUENCY = 5 Mc.  
 -.- LIMITING FREQUENCY = 7 Mc.

Fig. 98. FREIBURG, GERMANY NOVEMBER 1958

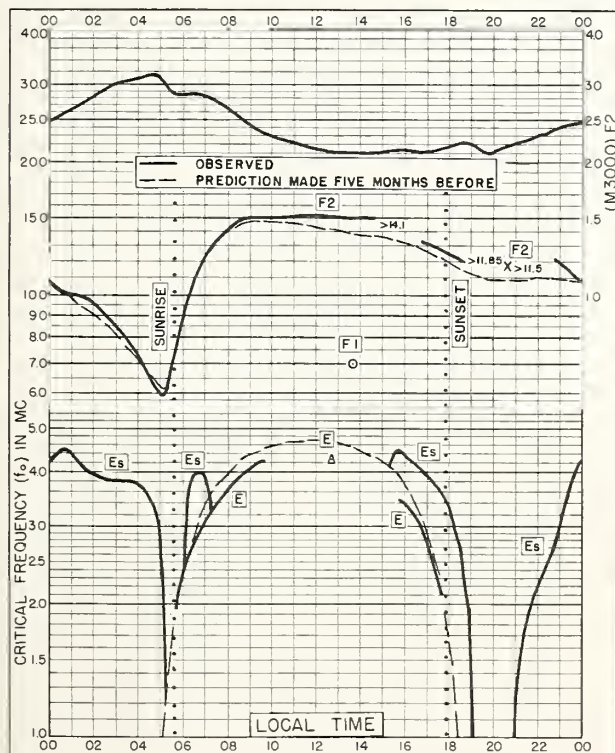
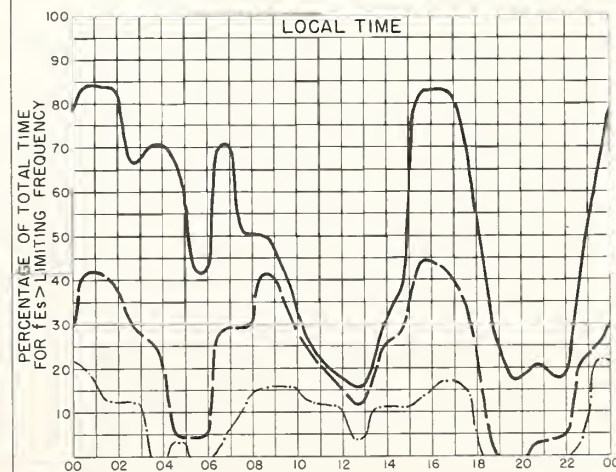
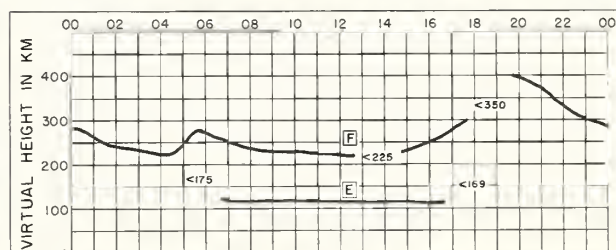


Fig. 99. CHICLAYO, PERU  
6.8°S, 79.8°W NOVEMBER 1958



— LIMITING FREQUENCY = 3 Mc.  
 --- LIMITING FREQUENCY = 5 Mc.  
 -.- LIMITING FREQUENCY = 7 Mc.

Fig. 100. CHICLAYO, PERU NOVEMBER 1958



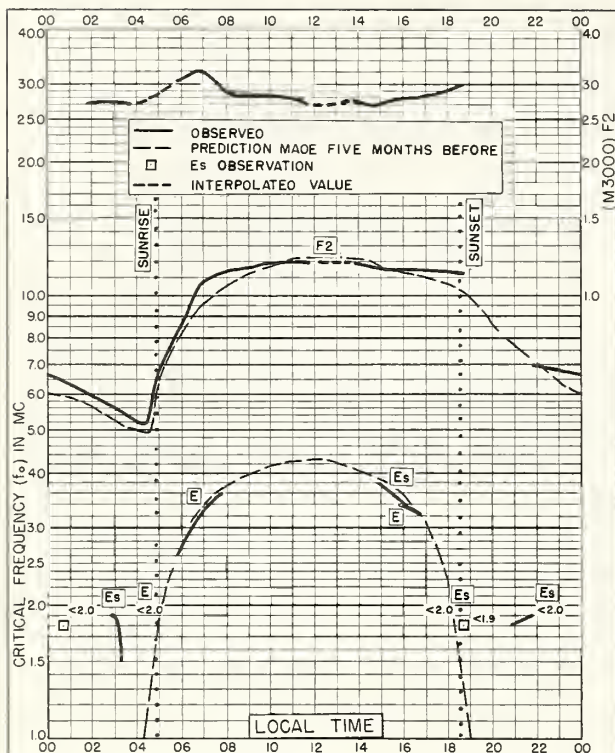


Fig. 101. GRAHAMSTOWN, UNION OF S. AFRICA  
33.3°S, 26.5°E NOVEMBER 1958

NBS 503

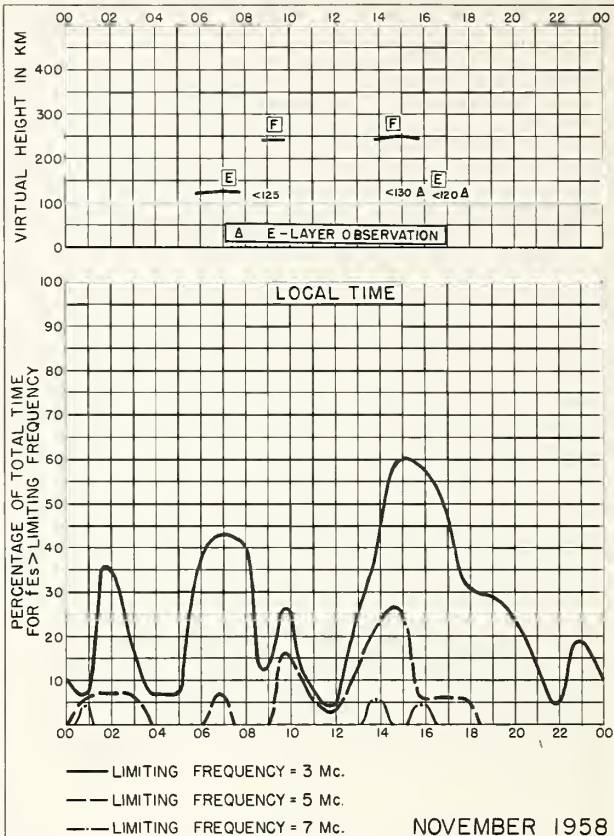


Fig. 102. GRAHAMSTOWN, UNION OF S. AFRICA

NBS 490

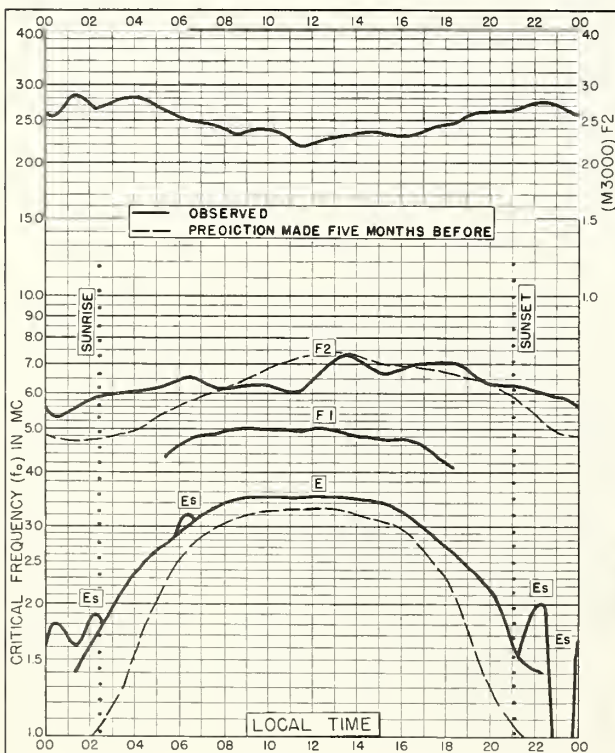


Fig. 103. WILKES STATION  
66.2°S, 110.5°E NOVEMBER 1958

NBS 503

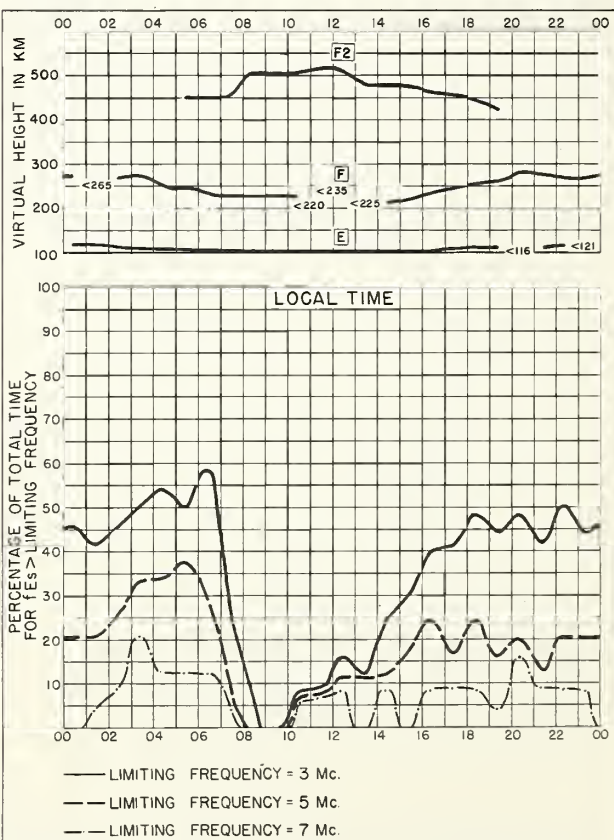


Fig. 104. WILKES STATION NOVEMBER 1958

NBS 490



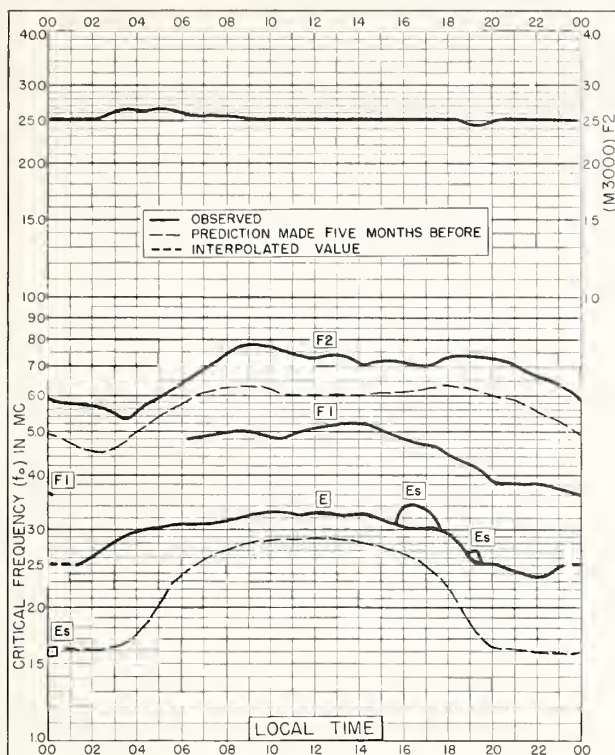


Fig. 105. LITTLE AMERICA  
78.2°S, 162.2°W NOVEMBER 1958

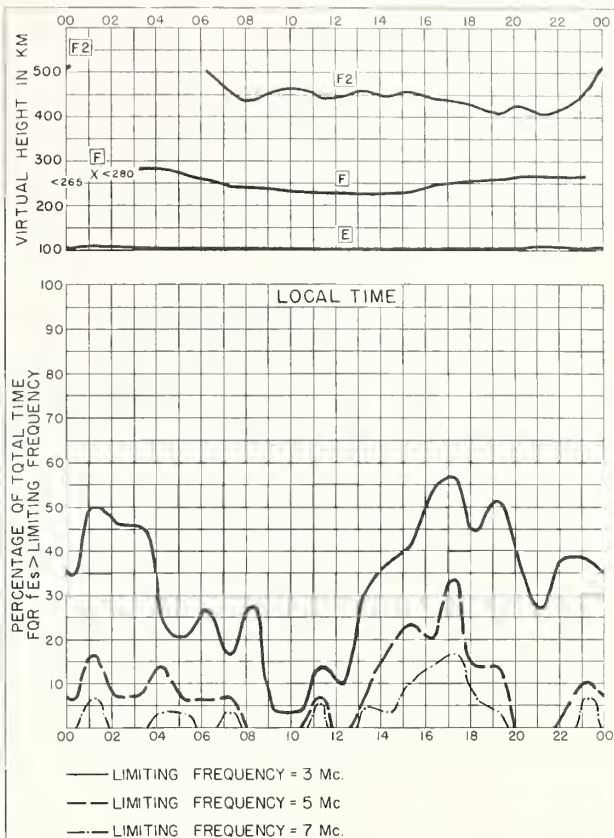


Fig. 106. LITTLE AMERICA NOVEMBER 1958

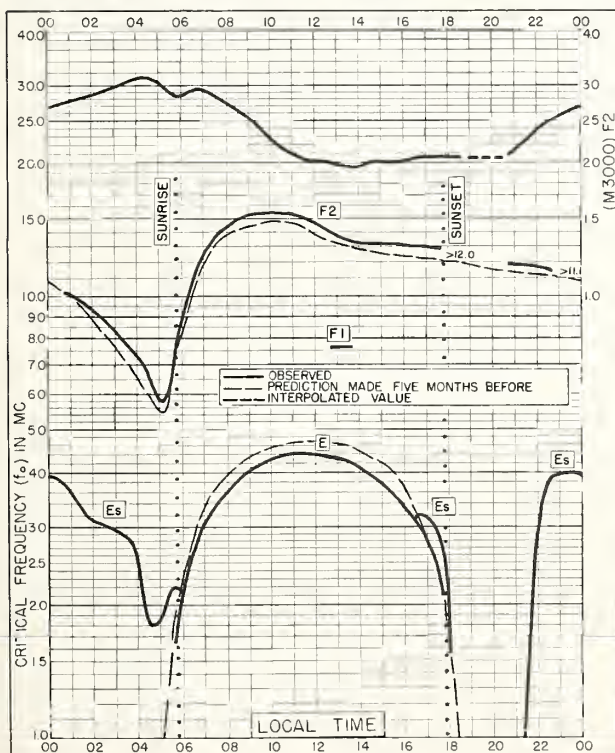


Fig. 107. CHICLAYO, PERU  
6.8°S, 79.8°W OCTOBER 1958

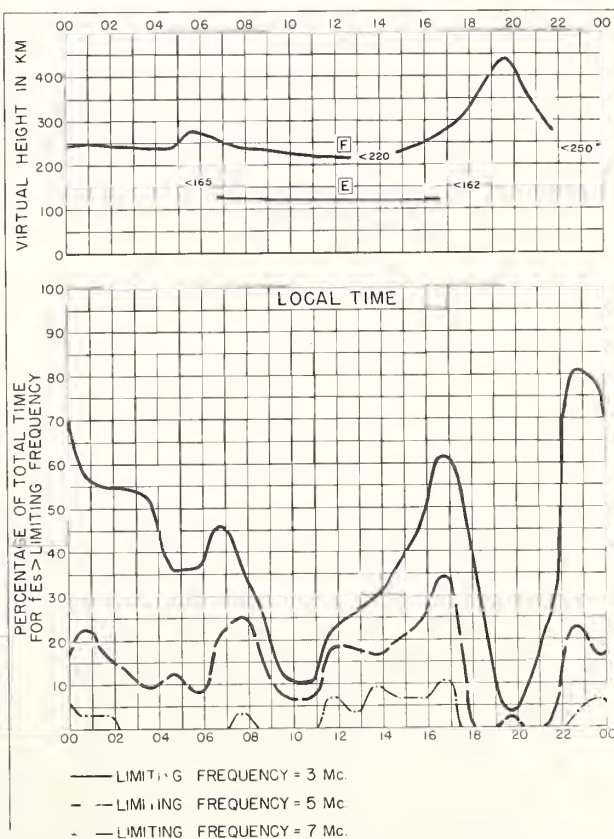


Fig. 108. CHICLAYO, PERU OCTOBER 1958

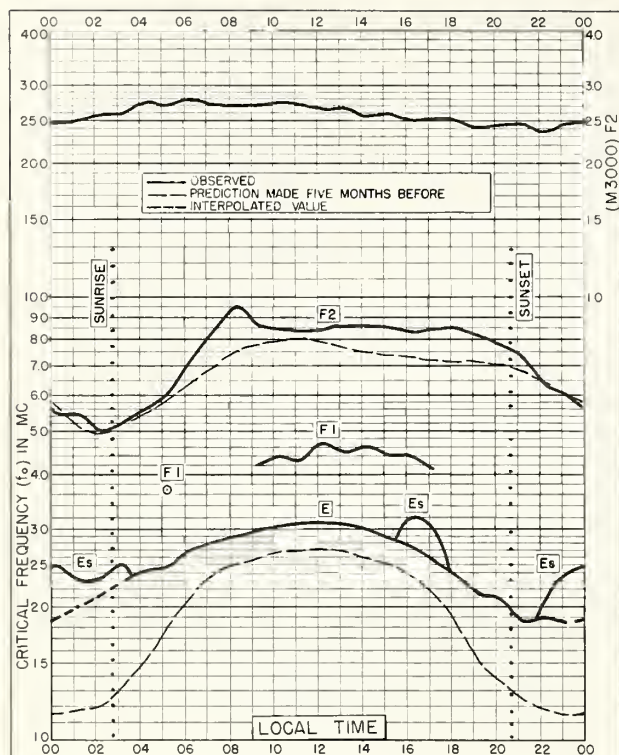


Fig. 109. LITTLE AMERICA  
78.2°S, 162.2°W

OCTOBER 1958

NBS 503

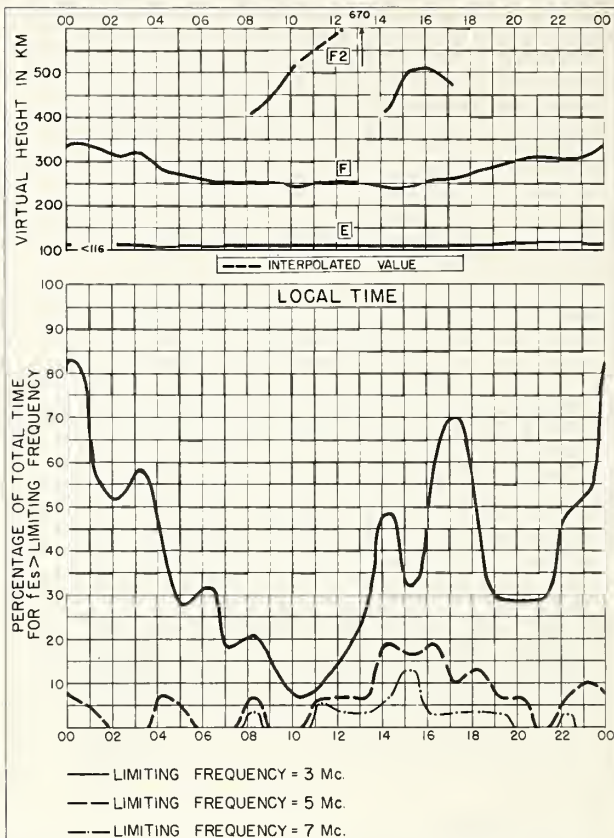


Fig. 110. LITTLE AMERICA

OCTOBER 1958

NBS 490

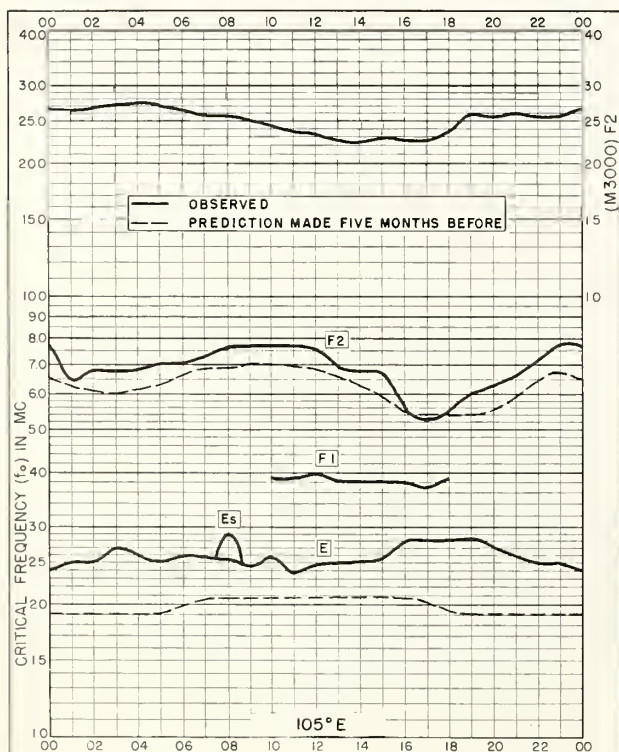


Fig. 111. POLE STATION  
90.0°S

OCTOBER 1958

NBS 503

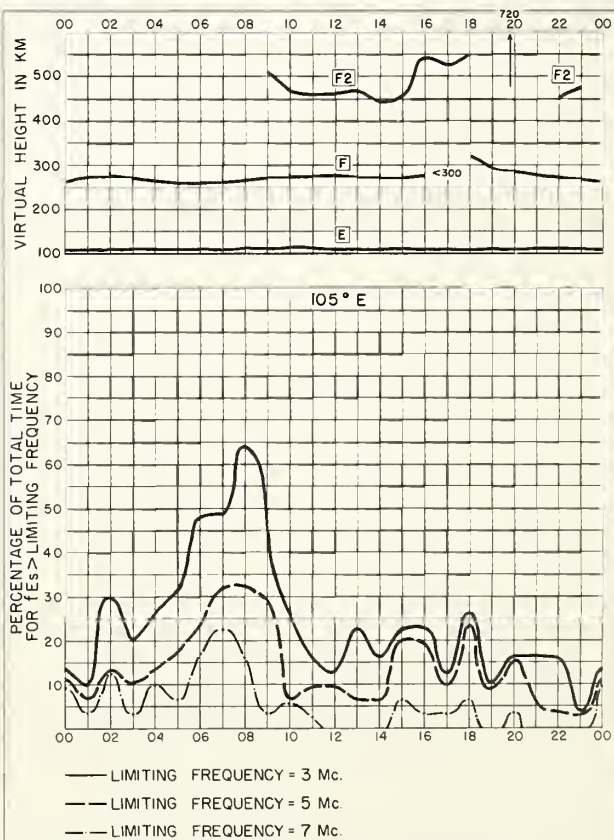


Fig. 112. POLE STATION

OCTOBER 1958

NBS 490



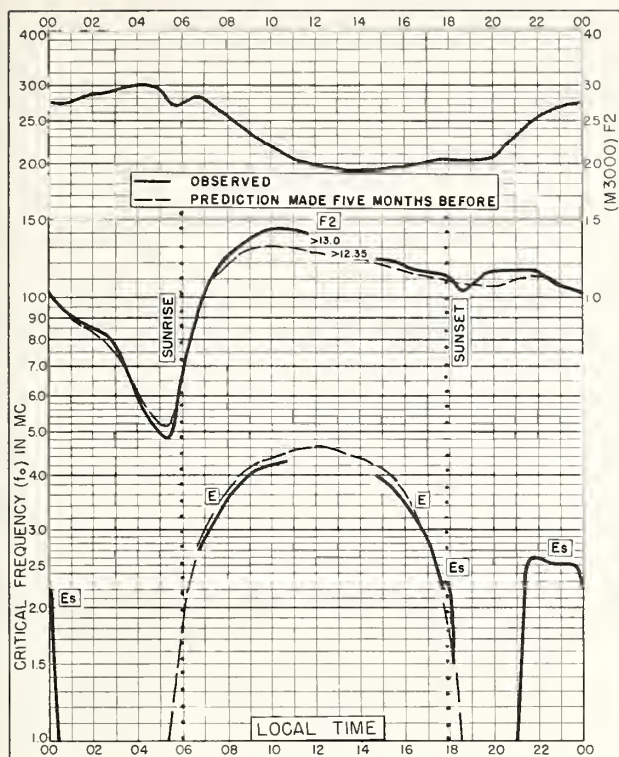


Fig. 113. CHICLAYO, PERU  
6.8°S, 79.8°W SEPTEMBER 1958

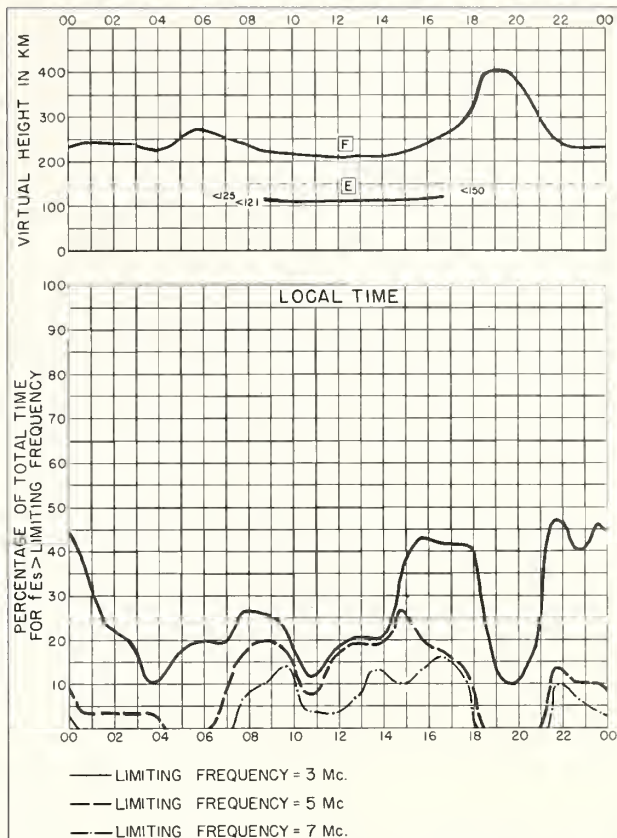


Fig. 114. CHICLAYO, PERU SEPTEMBER 1958

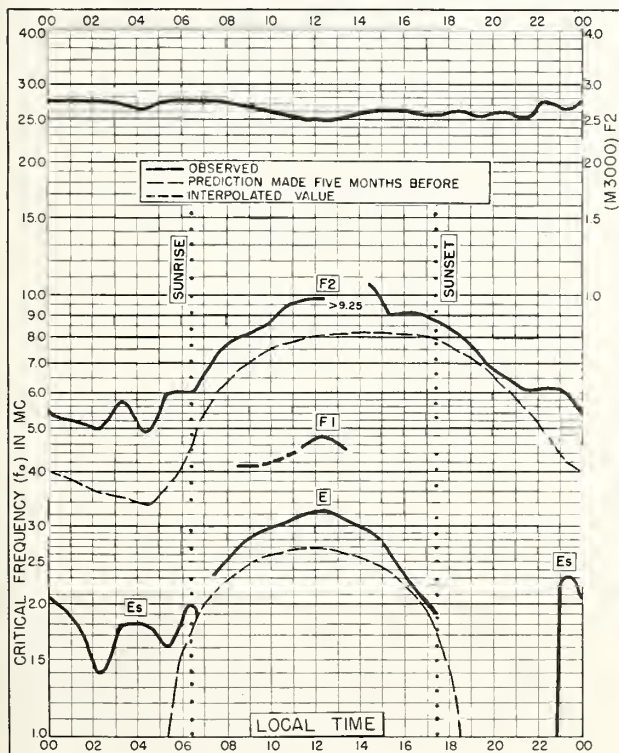


Fig. 115. WILKES STATION  
66.2°S, 110.5°E SEPTEMBER 1958

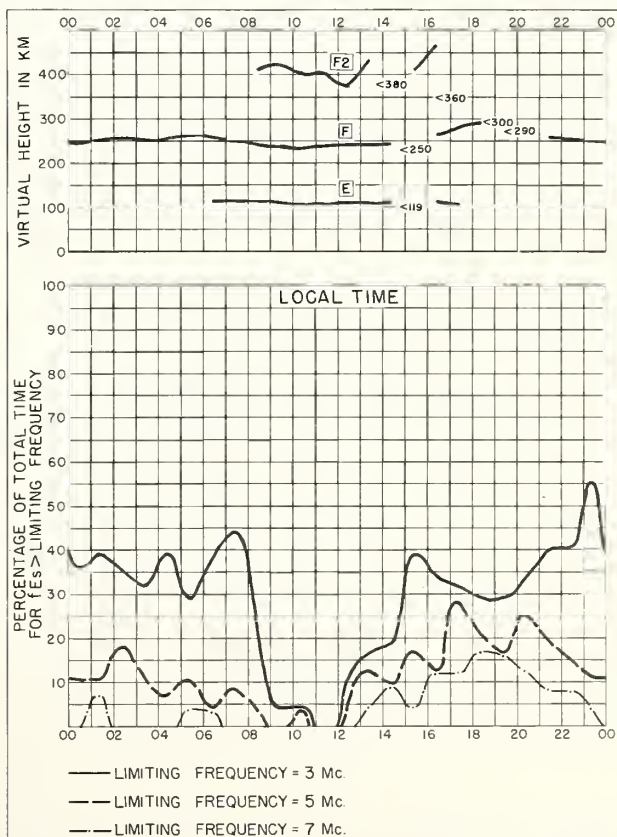


Fig. 116. WILKES STATION SEPTEMBER 1958



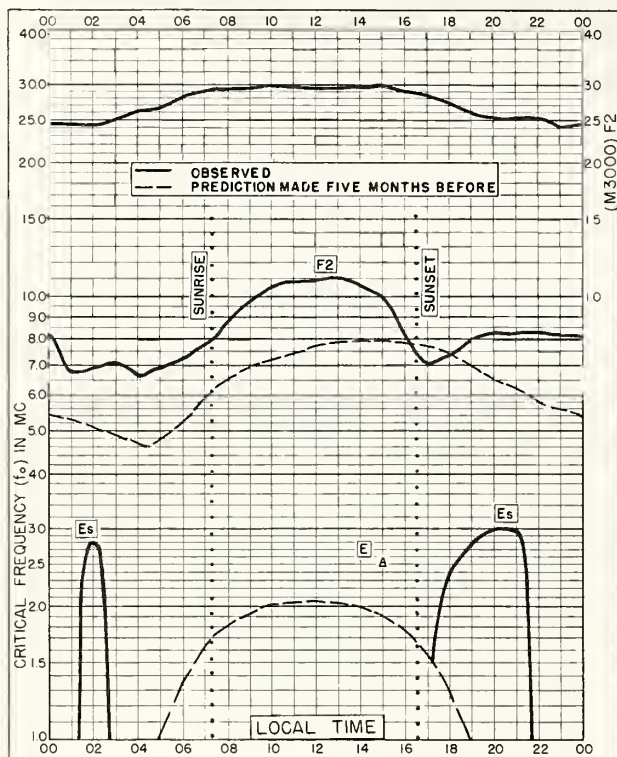


Fig. 117. BYRD STATION  
80.0°S, 120.0°W SEPTEMBER 1958

NBS 503

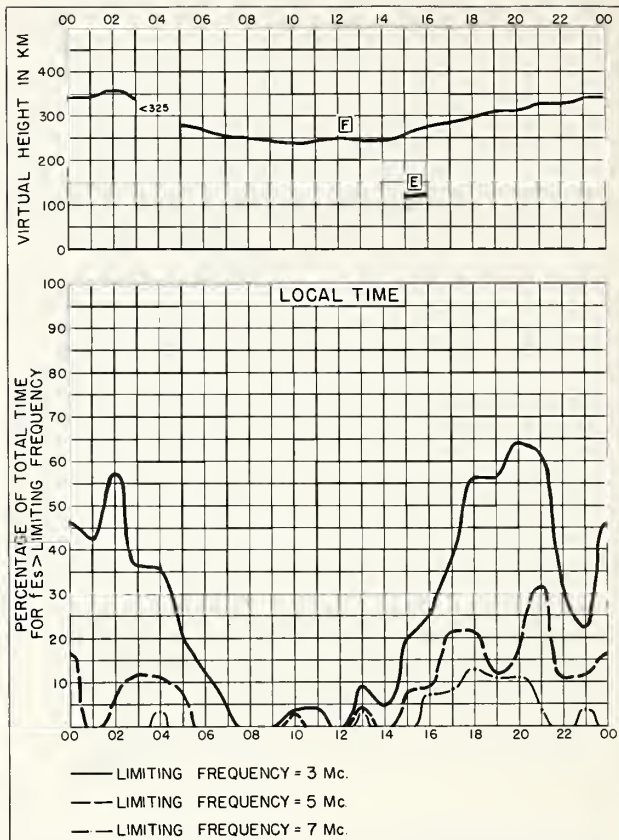


Fig. 118. BYRD STATION SEPTEMBER 1958

NBS 490

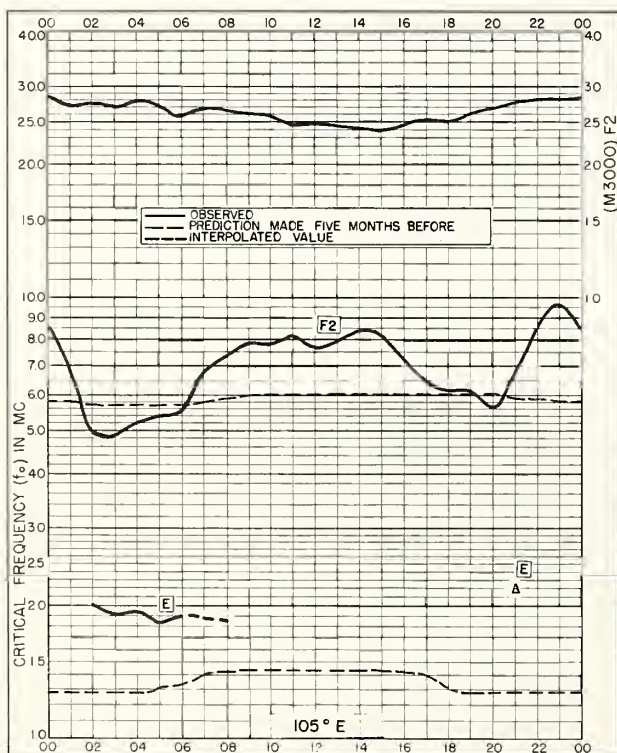


Fig. 119. POLE STATION  
90.0°S SEPTEMBER 1958

NBS 503

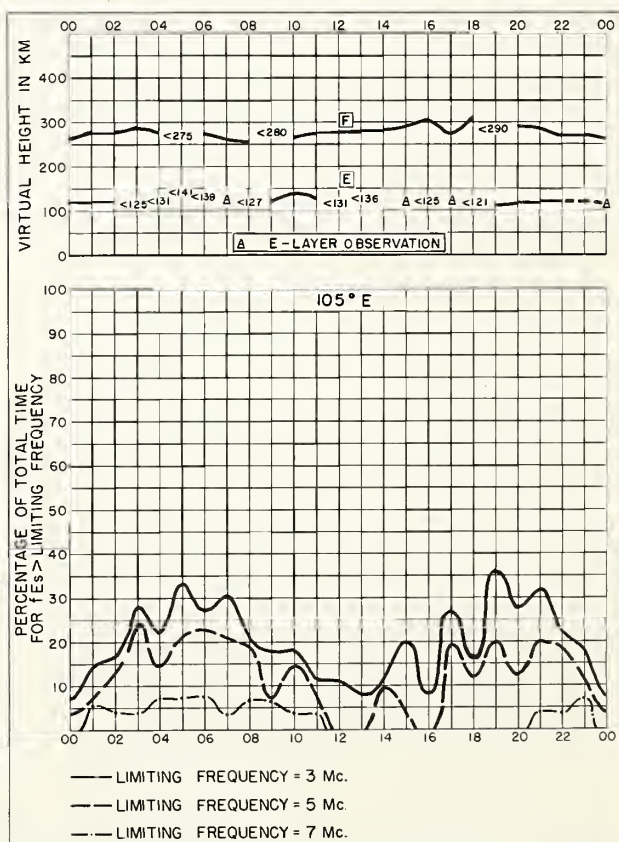


Fig. 120. POLE STATION SEPTEMBER 1958

NBS 490

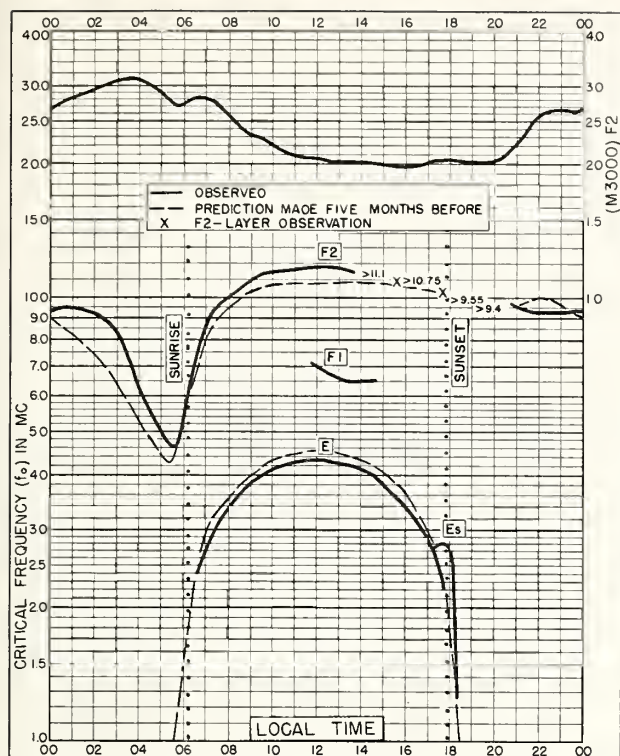


Fig. 121. CHICLAYO, PERU

6.8°S, 79.8°W

AUGUST 1958

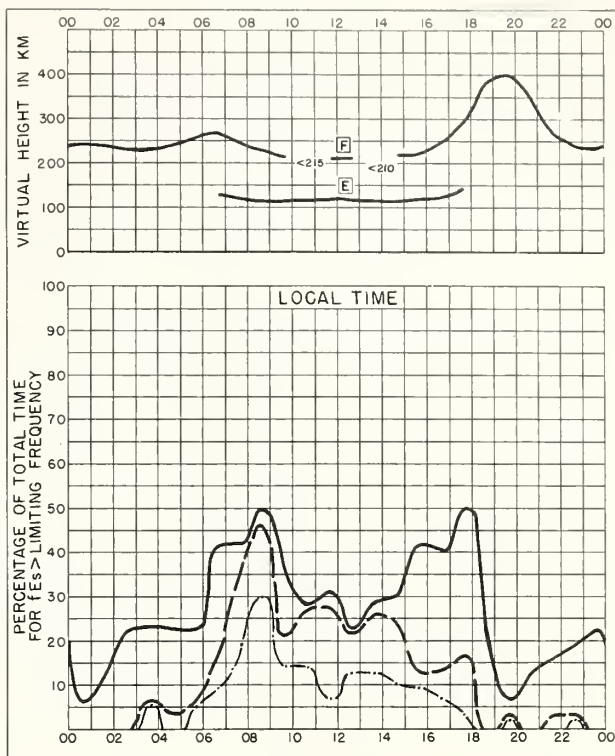


Fig. 122. CHICLAYO, PERU

AUGUST 1958

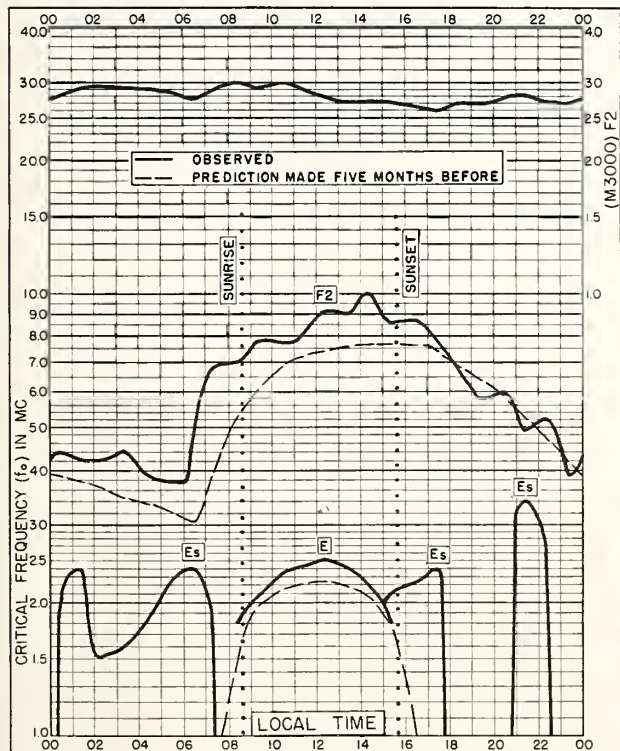


Fig. 123. WILKES STATION

66.2°S, 110.5°E

AUGUST 1958

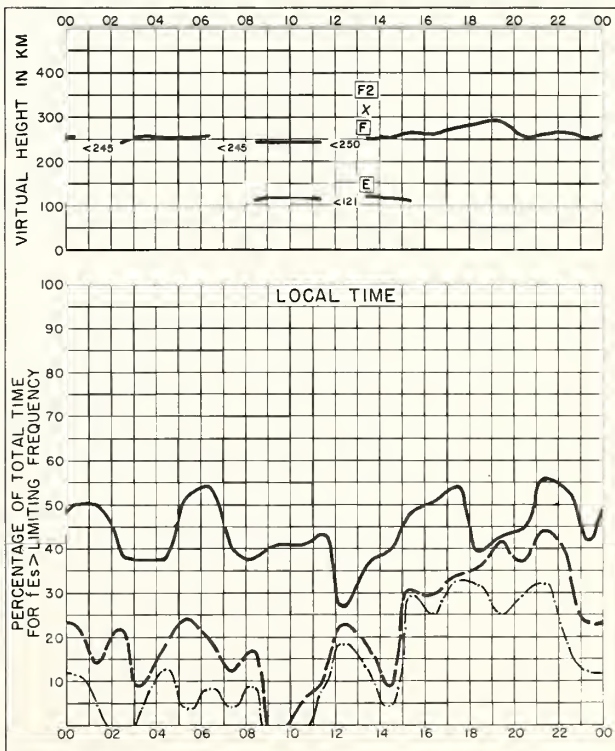


Fig. 124. WILKES STATION

AUGUST 1958



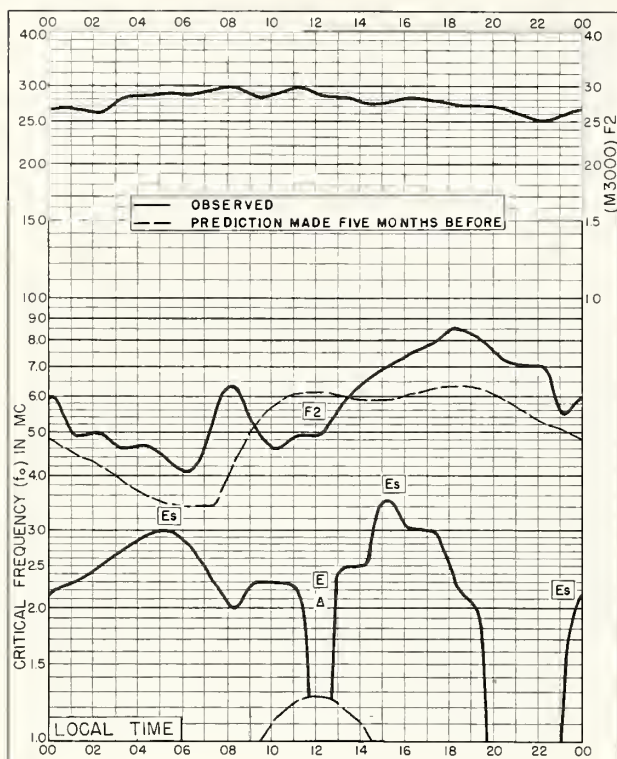


Fig. 125. LITTLE AMERICA  
78.2°S, 162.2°W

AUGUST 1958

NBS 503

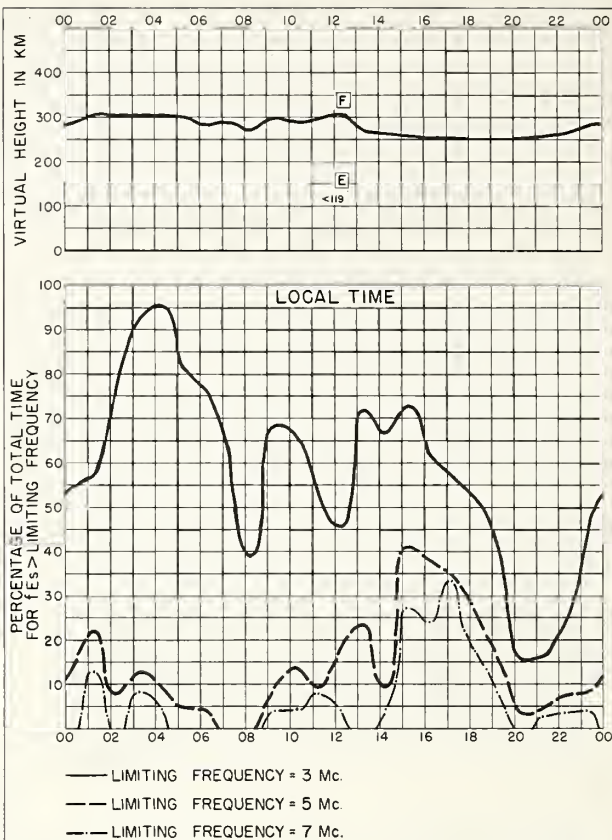


Fig. 126. LITTLE AMERICA

AUGUST 1958

NBS 490

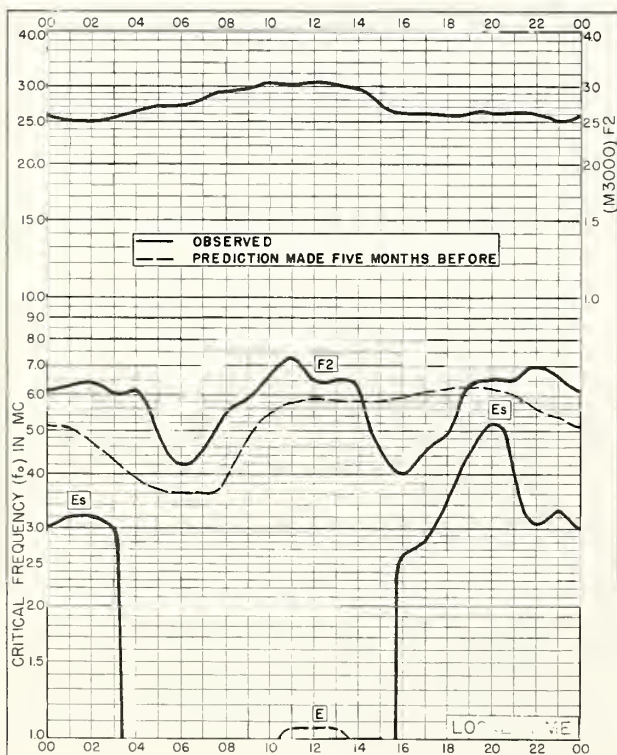


Fig. 127. BYRD STATION  
80.0°S, 120.0°W

AUGUST 1958

NBS 503

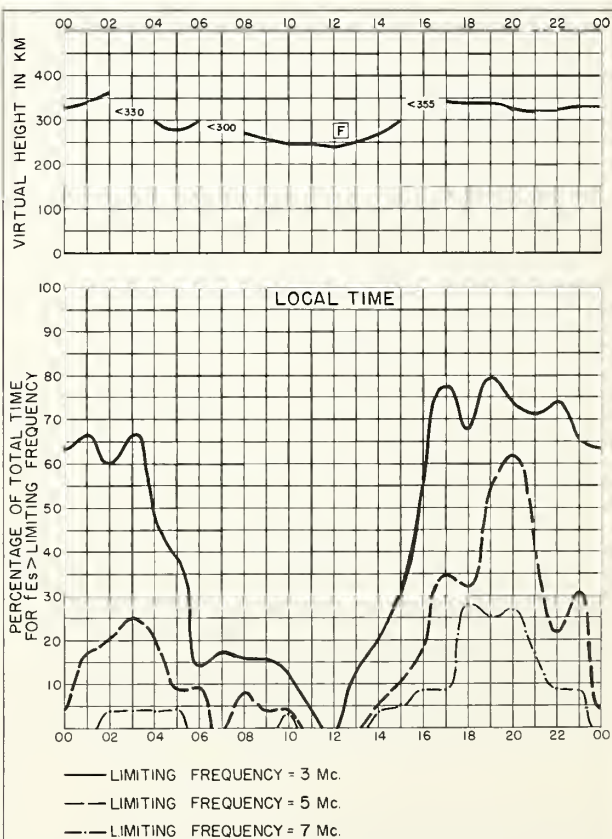


Fig. 128. BYRD STATION

AUGUST 1958

NBS 490



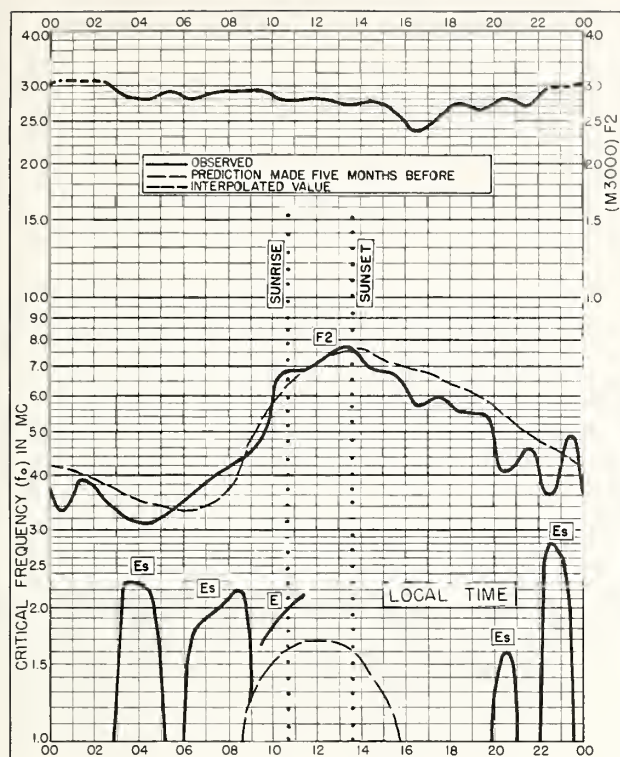


Fig. 129. WILKES STATION  
66.2°S, 110.5°E

JULY 1958

NBS 503

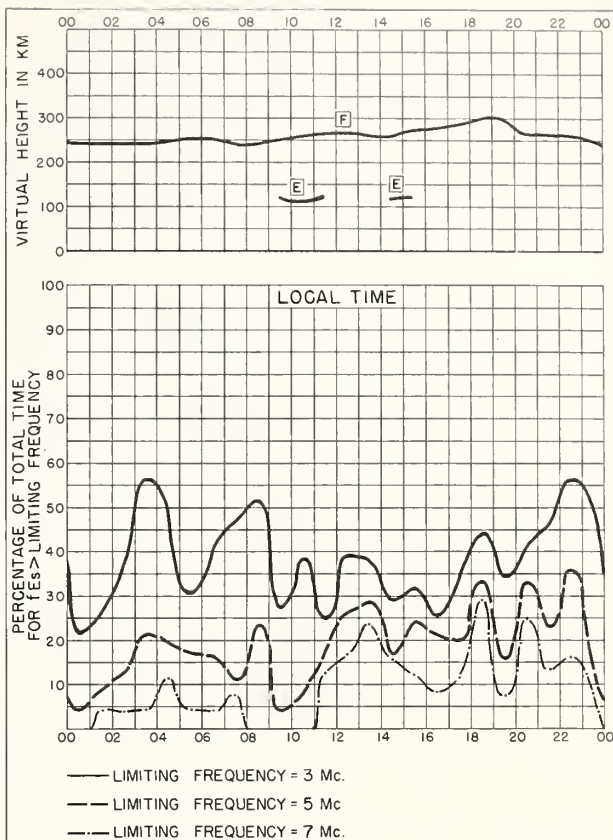


Fig. 130. WILKES STATION

JULY 1958

NBS 490

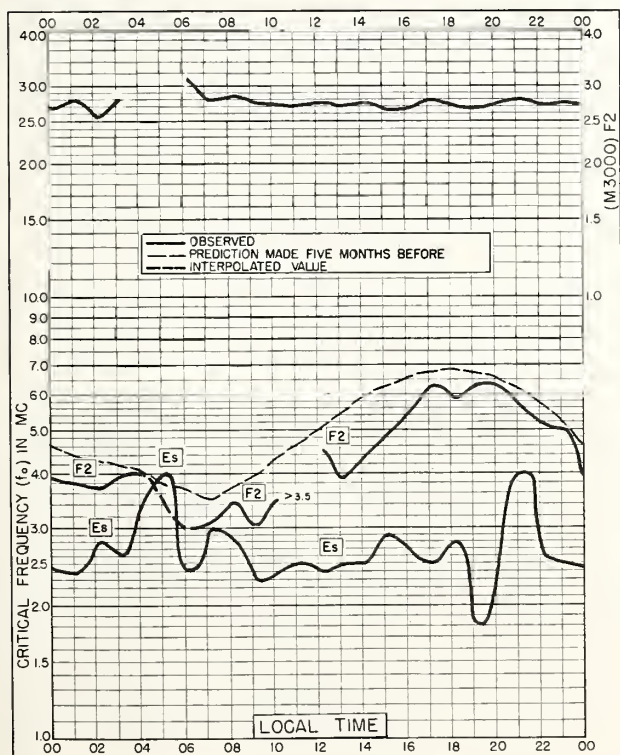


Fig. 131. LITTLE AMERICA  
78.2°S, 162.2°W

JULY 1958

NBS 503

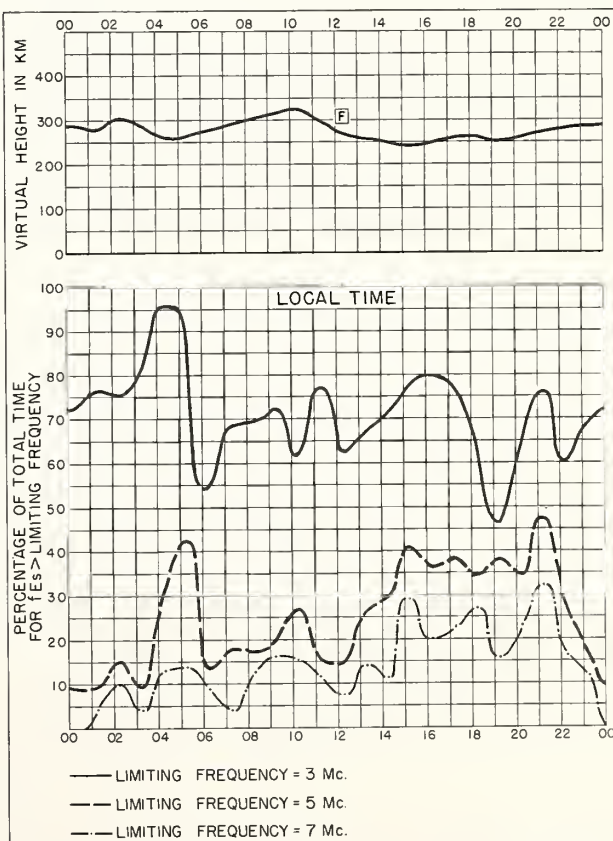


Fig. 132. LITTLE AMERICA

JULY 1958

NBS 490

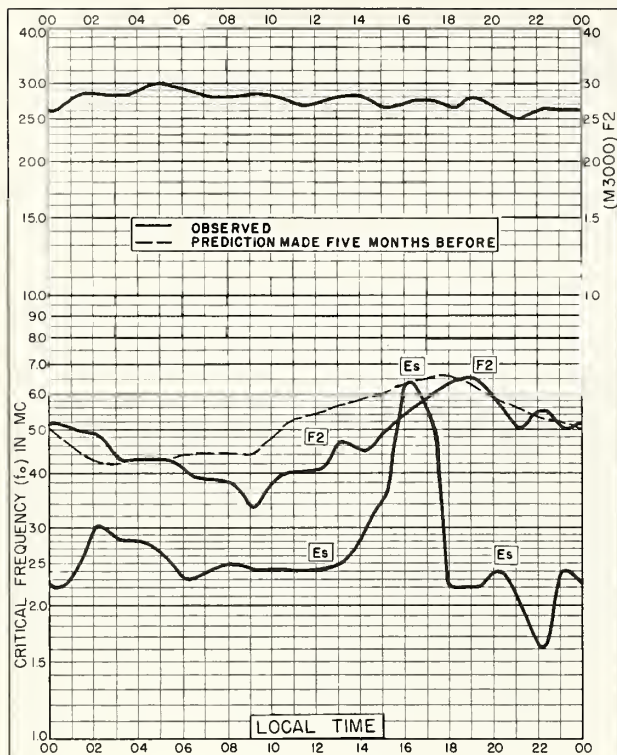


Fig. 133. LITTLE AMERICA  
78.2°S, 162.2°W

JUNE 1958

NBS 503

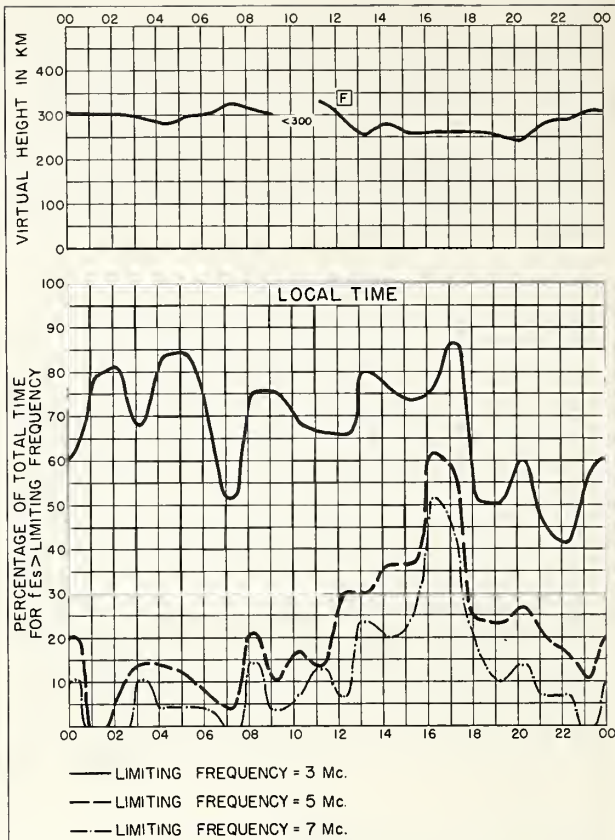


Fig. 134. LITTLE AMERICA

JUNE 1958

NBS 490

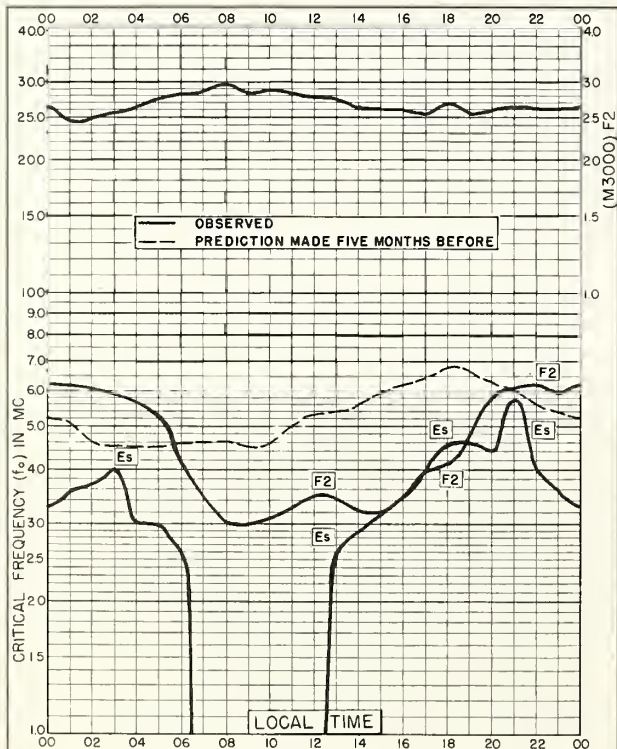


Fig. 135. BYRD STATION  
80.0°S, 120.0°W

JUNE 1958

NBS 503

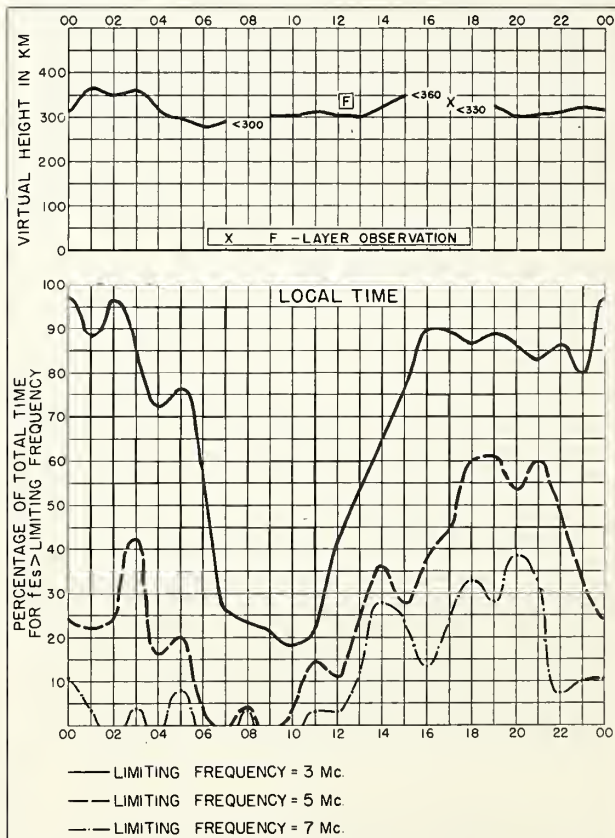


Fig. 136. BYRD STATION

JUNE 1958

NBS 490



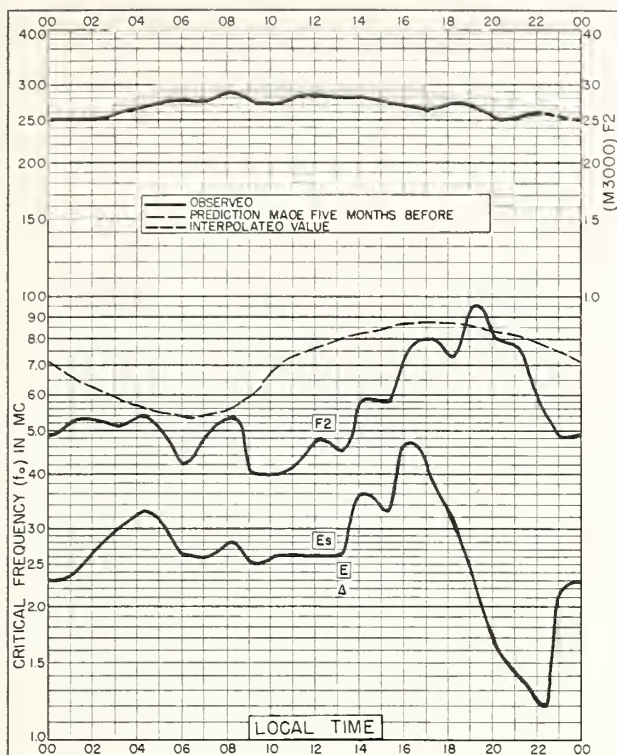


Fig. 137. LITTLE AMERICA  
78.2°S, 162.2°W

MAY 1958

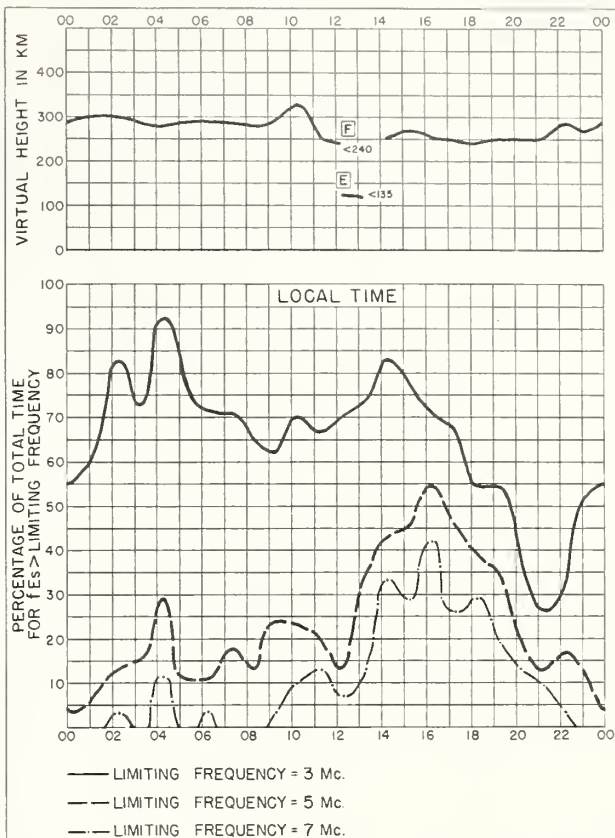


Fig. 138. LITTLE AMERICA

MAY 1958

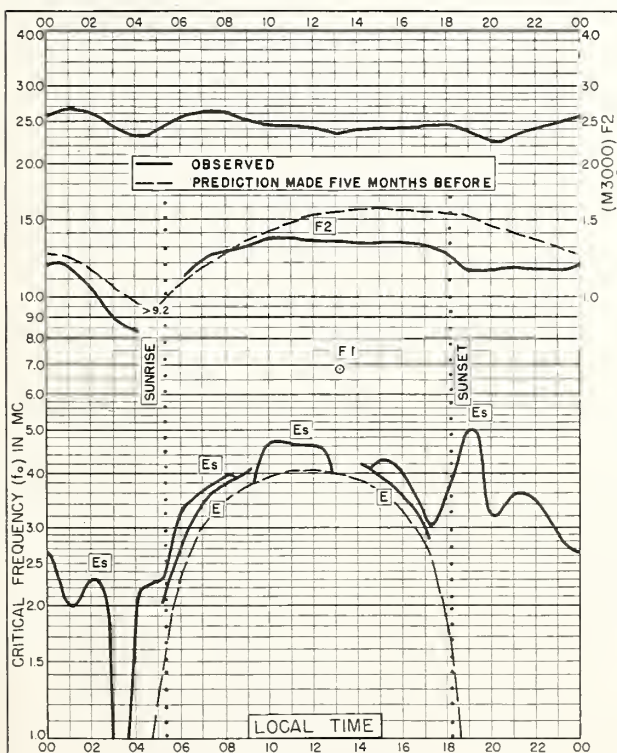


Fig. 139. CONCEPCION, CHILE  
36.6°S, 73.0°W

OCTOBER 1957

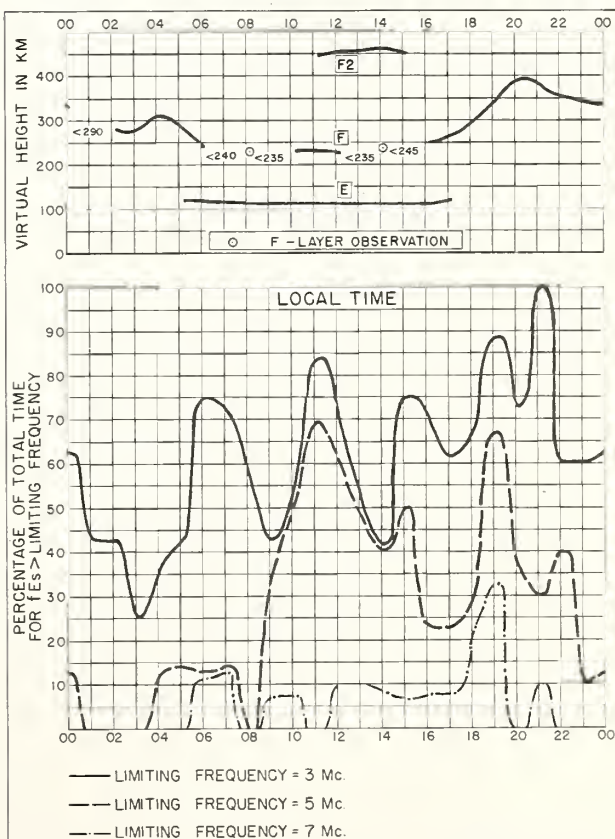


Fig. 140. CONCEPCION, CHILE

OCTOBER 1957



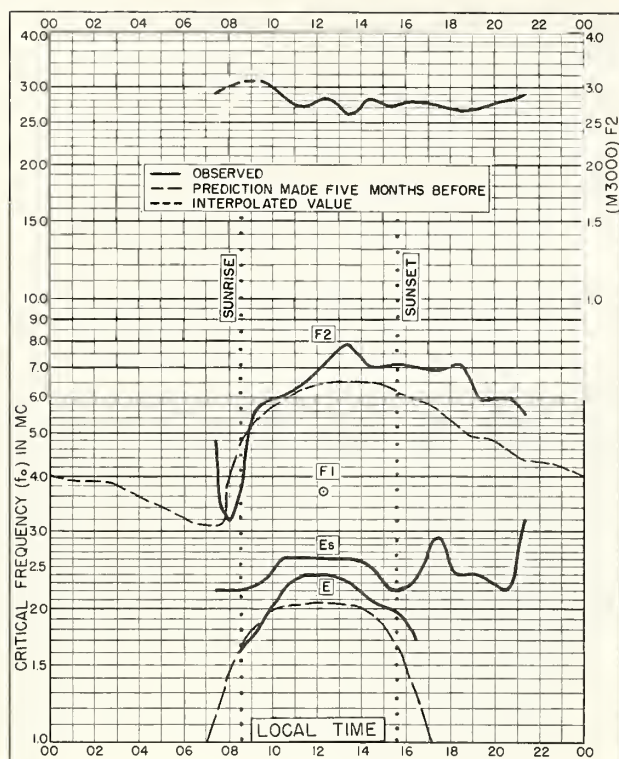


Fig. 141. TERRE ADELIE  
66.8°S, 141.4°E

AUGUST 1956

NBS 503

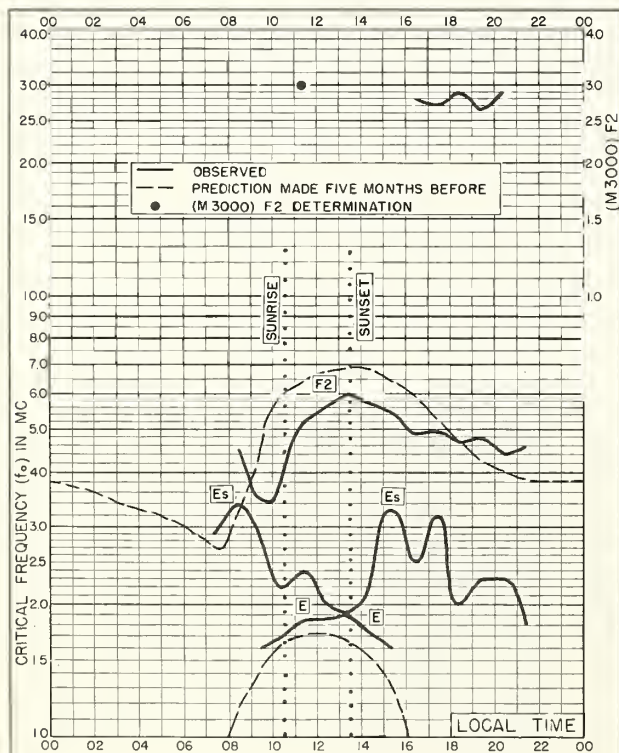


Fig. 143. TERRE ADELIE  
66.8°S, 141.4°E

JULY 1956

NBS 503

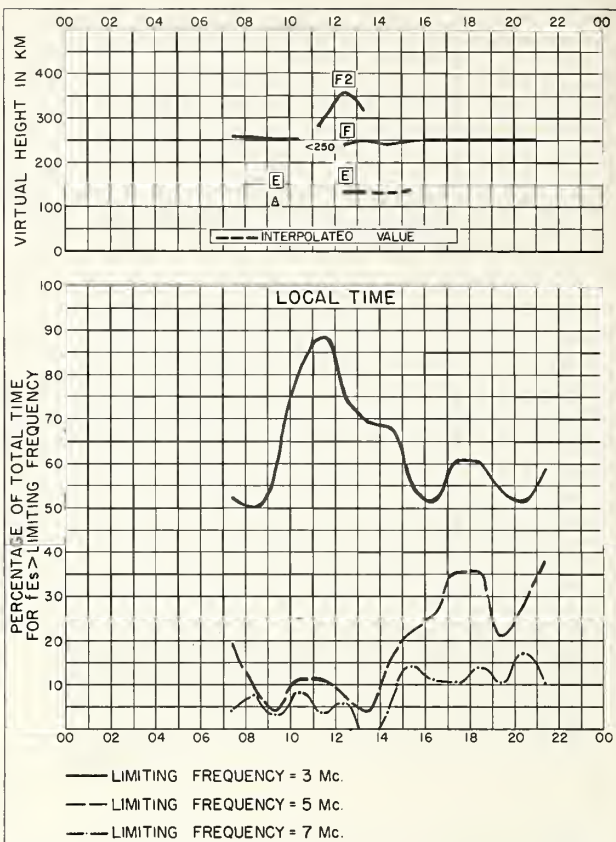


Fig. 142. TERRE ADELIE

AUGUST 1956

NBS 490

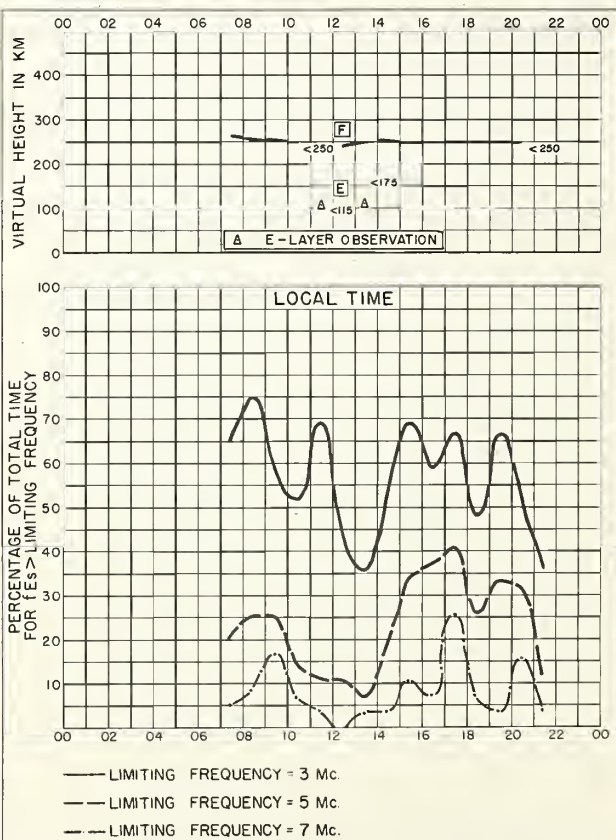


Fig. 144. TERRE ADELIE

JULY 1956

NBS 490

Index of Tables and Graphs of Ionospheric Data

in CRPL-F184 (Part A)

	<u>Table page</u>	<u>Figure page</u>
Anchorage, Alaska		
September 1959 . . . . .	1	13
Baker Lake, Canada		
January 1959 . . . . .	5	26
Bogota, Colombia		
May 1959 . . . . .	2	16
April 1959 . . . . .	2	18
February 1959. . . . .	3	21
January 1959 . . . . .	6	29
Brisbane, Australia		
February 1959. . . . .	4	23
January 1959 . . . . .	7	31
Byrd Station		
September 1958 . . . . .	10	42
August 1958. . . . .	11	44
June 1958. . . . .	12	46
Capetown, Union of S. Africa		
February 1959. . . . .	4	24
January 1959 . . . . .	7	31
Chiclayo, Peru		
November 1958. . . . .	9	37
October 1958 . . . . .	9	39
September 1958 . . . . .	10	41
August 1958. . . . .	11	43
Christchurch, New Zealand		
December 1958. . . . .	8	35
Churchill, Canada		
January 1959 . . . . .	5	27
Concepcion, Chile		
October 1957 . . . . .	12	47
El Cerillo, Mexico		
January 1959 . . . . .	6	29
Elisabethville, Belgian Congo		
December 1958. . . . .	8	34
Fairbanks, Alaska		
June 1959. . . . .	1	14
Freiburg, Germany		
December 1958. . . . .	7	33
November 1958. . . . .	9	37
Godhavn, Greenland		
January 1959 . . . . .	5	25
December 1958. . . . .	7	33
November 1958. . . . .	8	36
Grahamstown, Union of S. Africa		
December 1958. . . . .	8	34
November 1958. . . . .	9	38

Index (CRPL-F184 (Part A), continued)

	<u>Table page</u>	<u>Figure page</u>
Grand Bahama I.		
May 1959 . . . . .	2	16
Hobart, Tasmania		
February 1959. . . . .	4	24
January 1959 . . . . .	7	32
Huancayo, Peru		
May 1959 . . . . .	2	17
Ilo, Peru		
May 1959 . . . . .	2	17
Johannesburg, Union of S. Africa		
February 1959. . . . .	4	22
January 1959 . . . . .	6	30
Juliaca, Peru		
April 1959 . . . . .	2	18
Kiruna, Sweden		
February 1959. . . . .	3	19
January 1959 . . . . .	5	26
Little America		
December 1958. . . . .	8	36
November 1958. . . . .	9	39
October 1958 . . . . .	10	40
August 1958. . . . .	11	44
July 1958. . . . .	11	45
June 1958. . . . .	12	46
May 1958 . . . . .	12	47
Lwiro, Belgian Congo		
February 1959. . . . .	4	22
Macau		
January 1959 . . . . .	6	28
Maui, Hawaii		
June 1959. . . . .	1	15
Narsarssuak, Greenland		
January 1959 . . . . .	5	27
Point Barrow, Alaska		
July 1959. . . . .	1	13
Pole Station		
October 1958 . . . . .	10	40
September 1958 . . . . .	10	42
Resolute Bay, Canada		
January 1959 . . . . .	5	25
Schwarzenburg, Switzerland		
February 1959. . . . .	3	20
Singapore, British Malaya		
February 1959. . . . .	3	21
January 1959 . . . . .	6	30
Slough, England		
February 1959. . . . .	3	20
January 1959 . . . . .	6	28



Index (CRPL-F184 (Part A), concluded)

	<u>Table page</u>	<u>Figure page</u>
Talara, Peru		
June 1959. . . . .	1	15
Terre Adelie		
August 1956. . . . .	12	48
July 1956. . . . .	12	48
Thule, Greenland		
June 1959. . . . .	1	14
Tromso, Norway		
February 1959. . . . .	3	19
Watheroo, W. Australia		
February 1959. . . . .	4	23
Wilkes Station		
January 1959 . . . . .	7	32
December 1958. . . . .	8	35
November 1958. . . . .	9	38
September 1958 . . . . .	10	41
August 1958. . . . .	11	43
July 1958. . . . .	11	45

The annual index is on the following pages, 52-54.

INDEX OF IONOSPHERIC DATA PUBLISHED IN 1959  
(CRPL-F 171<sup>3</sup> (A) THROUGH F 184(A))

The following index of tables and graphs of ionospheric data published in the CRPL-F(A) series in 1959 is divided into two parts. Part I is an index of data observed in 1958 and 1959. Part II is an index of data observed prior to 1958.

In general, both table and graphs for a given station for a given month appear in the same issue.

Indexes of ionospheric data published prior to 1959 are in IRPL-F17, CRPL-F28, -F40, -F52, -F64, -F76, -F88, -F100, -F112, -F124, -F136(A), -F148(A), -F160(A), and -F172(A).

PART I

Index of Tables and Graphs of Ionospheric Data Observed in 1958 and 1959  
and Published in 1959 (CRPL-F173(A) through -F184(A))

Station	1958												1959											
	J	F	M	A	M	J	Jy	A	S	O	N	O	J	F	M	A	M	J	Jy	A	S	O	N	O
Adak, Alaska								173		174	175	176	179	179	181	182	183	183						
Akita, Japan				178		173	179	179	180	180	182	183												
Anchorage, Alaska											176	175	179	179	181	181	183				184			
Baguio, P. I.											173	176	177						183					
Baker Lake, Canada			178	177		178	179	174	179	181	181	183	184											
Bogota, Colombia	179	180	181	178	183	181	183	178	183	181	178	178	184	184		'84	184							
Brisbane, Australia				176	177	177	173	174	174	181	181	183	184	184										
Budapest, Hungary				178	176	178					182													
Bunia, Belgian Congo				174	177	174	178	179	179	179	180	182	183											
Burd Station	180	180	181	181	183	184	183	184	184															
Campbell I.					174	177	174		180	180	183													
Canberra, Australia				177		173	174	174	176	181														
Cape Canaveral, Florida											175													
Cape Hallett				176	177	181	179	174	179	180	182	183												
Capetown, Union of S. Africa				176			178		180	180	182	183	184	184										
Chiclayo, Peru						176	178	184	184	184	184													
Chimbote, Peru								175	176	176	178	177	180	181	181	182	183							
Christchurch, New Zealand			176	177		177	179	175	179	181	183	184												
Churchill, Canada					178		174	178	180	181	183	183	184											
Concepcion, Chile	173	174	174	174	174		183																	
Oe Bilt, Holland				178			174	175	180	180	182	183												
El Cerillo, New Mexico											182	183	184											
Elisabethville, Belgian Congo				177	174	178	178	179	179	180	182	184												
Ellsworth	178	178	178	178	178	178	178	178	178	179	178	179												
Eureka, Canada					178																			
Fairbanks, Alaska											173	176	176	179	180	182	181	183	184					
Falkland Is.						173	174	174	176	181	181	182												
Fletchers Ice I.							174	175	173	174	177	177												
Formosa, China						178	174	179	180	181	182	182												
Ft. Monmouth, New Jersey							174	176	175	173	174	177	180	180	182	181	183							
Freiburg, Germany											181	184	184											
Godhavn, Greenland								173	175	177	184	184	184	184	182	182	182	183						
Grahamstown, Union of S. Africa			178	178	178	178	174				184	184												
Grand Bahama I.								175	174	174	176	177	180	182	182	182	184							
Graz, Austria						176	173	175	176		183													
Hobart, Tasmania				178		173	173	175		181	182	183	184	184										
Huancayo, Peru								176	176	176	176	176												
Ibadan, Nigeria			173	173	173		174	178		181														
Ilo, Peru															181	183	182	184						
Inverness, Scotland <sup>a</sup>							173		176	180	181	183 <sup>b</sup>												
Johannesburg, Union of S. Africa			176			178	179	176	180	180	182	183	184	184										
Juliac, Peru																184								
Kiruna, Sweden						173	178	179	183	180	182	182	184	184										
La Paz, Bolivia	175	175	175	175	175	175	174	175	181	180	179													
Leopoldville, Belgian Congo					177	174	178	178	179	180	180	182	183											
Lindau/Harz, Germany				177	178	178	178	178																
Little America	180	180	182	183	184	184	184	184			184	184	184	184										
Lulea, Sweden									179	176	180	182	183											
Lwiro, Belgian Congo															184									
Lycksele, Sweden				178		178	178	178	180	180	182	183												

## PART I (CONCLUDED)

Station	1958												1959											
	J	F	M	A	M	J	Jy	A	S	O	N	O	J	F	M	A	M	J	Jy	A	S	O	N	O
Macau												183												184
Maui, Hawaii												173 174 177												179 179 181 182 183 184
Monte Capellino, Italy												183 <sup>c</sup> 183 <sup>c</sup> 183 <sup>c</sup>												
Moscow, U.S.S.R.				175	175	175						182												
Narsarsuak, Greenland				174				173				183												184 182 182 182 183
												181 179 179												
Natal, Brazil								173	176	183														
Nurmijarvi, Finland						177		174	176	180 181 183														
Okinawa I.								175	174	176 176														179 180 181 182 183
Oslo, Norway				176	177	178 178		179	179	180 180 182 182														
Ottawa, Canada				177				174	179	179 180 182 182														
Panama Canal Zone												173 174 177												
Point Barrow, Alaska												175 176 177												180 180 182 182 183 183 184
Pole Station												184												
Puerto Rico, W. I.												173 174 177												
Rarotonga I.						176 177 177 178		179	178	180 181 183														
Resolute Bay, Canada								174	179	179 180 181 182														184
Reykjavik, Iceland										174 174 176 177														181 181 182 182 183
Rome, Italy				173		174		174	179	180 181 181 183														
St. John's, Newfoundland								175	175	174 174 177														180 181 181 182 182
San Francisco, California								173	173	174 174 177 177														179
Sao Paulo, Brazil						176 177 173																		
Schwarzenburg, Switzerland						173		173	179	179 181 181 183														184
Scott Base						176 177		178	178	180 181 182														
Singapore, British Malaya								174	176	176 181 181 182														184 184
Slough, England								174		179 180 183 183														
Sodankyla, Finland																								
Talara, Peru						178		173	179	180 180 182 182														
Thule, Greenland										175 176 177 178 176														180 180 181 182 184
Tokyo, Japan								175	175	175 174 174 177														179 180 181 182 183 184
Tortosa, Spain						178		173		179 180 180 182 183														
								174		179 179														
Townsville, Australia						183 176 177 178 173		175		180 181 182														
Tromso, Norway						176 177 179 178		173	179	176 180 182 182														183 184
Upsala, Sweden								179	179	180 180 182 183														
Wakkanai, Japan						178		173		179 180 180 182 183														
Washington, O. C.										173 174 175														177 177 181 182 183 183 183
Watheroo, Western Australia						176		178		178 175 176 181 183 182														184
White Sands, New Mexico										173 174 176 177														179 179 181 182 183
Wilkes Station						180 182				184 184 184 184 184														184
Winnipeg, Canada						177 177		178		173 179 179 181 182 182														
Yamagawa, Japan								178		179 179 180 180 182 183														

<sup>a</sup>See erratum in CRPL-F173(A), p. viii, concerning data for July 1957 through January 1958.

<sup>b</sup>See erratum in CRPL-F184(A), p. vii, concerning December 1958 data.

<sup>c</sup>foEs in tabular form only.

Part II of this Index is on following page.



## PART II

## Index of Tables and Graphs of Ionospheric Data Observed Prior to 1958 and

Published in 1959 (CRPL-F173(A) through -F184(A))

Station	1957												1956												
	J	F	M	A	M	J	Jy	A	S	O	N	D	J	F	M	A	M	J	Jy	A	S	D	N	D	
Ahmedabad, India							176	177														174	173	173	
Alert, Canada									175																
Bogota, Colombia							174			176															
Bombay, India							176	177														174	173	173	
Budapest, Hungary																							173		
Byrd Station								179	179	181	179	179													
Calcutta, India							176	177														174	173	173	
Campbell I.	180	174	173										173		174	174	175		175	177		178		174	
Canberra, Australia			173																						
Cape Hallett								175																	
Concepcion, Chile										184		173													
Dakar, French W. Africa														175	175	175	175		176	177					
Deception I.								177																	
Delhi, India							176	177														174	173	173	
Djibouti, French Somaliland*														175	175	175	175		175	177					
Freiburg, Germany							178	179	180																
Ibadan, Nigeria	173	173	173	173																		183	182		
Kerguelen I.																									
Kodaikanal, India							176	177														174	174	173	
La Paz, Bolivia										178	175														
Little America							177	176	176	177	177	179													
Macquarie I.						173		177					175	175	175	175	175	175		175	175	175	174		
Madras, India							176	177															174	173	173
Marion I.								175																	
Monte Capellino, Italy						175	175	175																	
Pole Station								173	173	173															
Port Lockroy								177																	
San Francisco, California									173																
Sverdlovsk, U.S.S.R.								177																	
Tananarive, Madagascar														175	175	175	175		176	177					
Terre Adelie																						184	184		
Tiruchy, India							176	177															174	173	173
Tortosa, Spain							174																		
Trivandrum, India							176	177																	
Tucuman, Argentina								177																	
Victoria, Canada							174																		
Wilkes Station							177	177	178	178	178	178													

\*See erratum in CRPL-F174(A), p. viii, concerning January and February 1956 data.

Station	1955												1954											
	J	F	M	A	M	J	Jy	A	S	D	N	D	J	F	M	A	M	J	Jy	A	S	O	N	D
Ahmedabad, India										176														
Bombay, India										175														
Calcutta, India										176														
Campbell I.						176	176	177			175	173										176		
Delhi, India										176														
Kodaikanal, India										175														
Madras, India										175														
Sao Paulo, Brazil										176	174	174												
Tiruchy, India										175														

Station	1953						1952					
	J	F	M	A	M	J	Jy	A	S	O	N	D
Campbell I.	180			180							176	
Leopoldville, Belgian Congo	176						181				176	
								181			177	
								177	179		177	
											181	180
											175	177

Station	1951					
	J	F	M	A	M	J
Campbell I.						181

---

## CRPL Reports

[A detailed list of CRPL publications is available from the Central Radio Propagation Laboratory upon request]

### *Daily:*

Radio disturbance forecasts, every half hour from broadcast stations WWV and WWVH of the National Bureau of Standards.

Telephoned and telegraphed reports of ionospheric, solar, geomagnetic, and radio propagation data.

### *Semiweekly:*

CRPL—J. North Atlantic Radio Propagation Forecast (of days most likely to be disturbed during following month).

CRPL—Jp. North Pacific Radio Propagation Forecast (of days most likely to be disturbed during following month).

### *Semimonthly:*

CRPL—Ja. Semimonthly Frequency Revision Factors For CRPL Basic Radio Propagation Prediction Reports.

### *Monthly:*

CRPL—D Basic Radio Propagation Predictions—Three months in advance. (Dept. of the Army, TB 11—499—, monthly supplements to TM 11—499; Dept. of the Air Force, TO 31—3—28 series). On sale by Superintendent of Documents.\* Members of the Armed Forces should address cognizant military office.

CRPL—F. (Part A). Ionospheric Data.  
(Part B). Solar-Geophysical Data.

Limited distribution. These publications are in general disseminated only to those individuals or scientific organizations which collaborate in the exchange of ionospheric, solar, geomagnetic, or other radio propagation data.

### *Catalog of Data:*

A catalog of records and data on file at the U. S. IGY World Data Center A for Airglow and Ionosphere, Boulder Laboratories, National Bureau of Standards, which includes a fee schedule to cover the cost of supplying copies, is available upon request.

The publications listed above may be obtained without charge from the Central Radio Propagation Laboratory, National Bureau of Standards, Boulder Laboratories, Boulder, Colorado, unless otherwise indicated. Please note that the F series is not generally available.

---

### *Circulars of the National Bureau of Standards pertaining to Radio Sky Wave Transmission:*

NBS Circular 462. Ionospheric Radio Propagation. \$1.25.

NBS Circular 465. Instructions for the Use of Basic Radio Propagation Predictions. 30 cents.

NBS Circular 557. Worldwide Radio Noise Levels Expected in the Frequency Band 10 Kilocycles to 100 Megacycles. 30 cents.

NBS Circular 582. Worldwide Occurrence of Sporadic E. \$3.25.

These Circulars are on sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Members of the Armed Forces should address the respective military office having cognizance of radio wave propagation.

---

\* For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D. C. Price 15 cents (single copy). Subscription price: \$1.50 a year; 50 cents additional for foreign mailing.

